HIB-GA 36
October 1958
Volume 5 : 33

E K I S T I C S

HOUSING & PLANNING ABSTRACTS

Published for private circulation by
DOXIADIS ASSOCIATES
Consulting Engineers
Lykavittou Strat. Syndesmou
ATHENS, GREECE. Tel: 616.111

Editor:

Prof. J. Tyrwhitt, 7 Sumner Road, Cambridge, Mass., USA

Dymaxion map on cover by Buckminster Fuller, Patent 2393676

TABLE OF CONTENTS

-:-:-:-:-:-:-:-

EDITORIAL 86

I. HOUSING

The Farmhouses of Taira and Shirakawa (with illustrations p. 90) — Michio Fujioka — 89

Japanese dwellings of the past — Hisaakira Kano — 92

The Villa Banqueta experimental project, Panamá. (with illustrations p. 96) — Helga Peralta and Alan Smith — 94

Rural housing: a draft manual (with illustrations pp. 98, 100-101) — India, Ministry of works housing and supply. — 97

II. PLANNING

Village layout plans (with illustrations pp. 104-106) — India, Ministry of works housing and supply. — 103

Housing and community development in Iraq. (with illustratipns pp. 108-109) — Doxiadis Associates — 107

The Muslim town (with illustrations pp. 112, 114, 116-117) — G.E. von Gruenbaum — 110

Planning for developing countries — Antonio C. Kayanan — 118

Report of the Committee for co-ordination of investigations of the lower Mekong basin. (with illustration p. 121) — UN. Eco. & Social Council Com. for Asia & the Far East — 120

Water resources in economic development — UN. Eco. & Social Council — 122

III. CONSTRUCTION

Bricks and the module (with illustrations p. 126) — Bruce Martin — 125

Criterion for the evaluation of roof coating asphalts — C.E. Wilkenson, Leon Striker and R.N. Traxler. — 129

IV. GENERAL

Urbanization and natural resources — Jack P. Gibbs and Walter T. Martin — 133

Some aspects of investment policy in under-developed countries. — International Labour Office — 136

Economic and Social Council discussions on industrialization - Economic development of under-developed countries: Industrialization.	UN. Dept. of Public Information - UN. Eco. and Social Council.	139
Demographic conditions and trends in the non-self-governing territories. (with charts pp. 142-145)	UN. General Assembly	141
Near East locust attack met by FAO and TAB.	UN. Dept. of Public Information.	147

V. APPENDIX

A regional development program for Greater Mussayib, Iraq, 1958. (with illustrations)	Doxiadis Associates	149
Classification system used by Doxiadis Associates		188

EDITORIAL

-:-:-:-

This issue of EKISTICS appears after a gap of one month due to summer holidays. It contains two innovations: one the addition of an appendix describing one of the projects being carried out by Doxiadis Associates: in this case the preparation of a regional development program. In the next two months descriptions will be given of the steps taken by Doxiadis Associates in developing master plans for two major Iraqi cities.

The second innovation is the assembly of all abstracts dealing with construction in a separate section.

It is also perhaps as well to call attention here to the fact that Doxiadis Associates have moved all their Athens offices into a new building on the slopes of Mount Lykabetus, and that Prof. Jaqueline Tyrwhitt has also changed her address: both changes are noted on the cover.

In the housing section, this issue is entirely concerned with rural housing, from descriptions of the handsome traditional silk-farming farmhouses of Japan to two practical contemporary attempts to tackle the problem of providing decent shelter within the economic reach of the agricultural laborers of Panamá and India.

Though the planning section also starts with an article on village planning in India, it is not solely concerned with the rural scene. The urban development of the Middle East is touched upon in both its traditional and its contemporary aspects.

We then move to some of the wider aspects of planning. There is a short extract from an address by Kayanan, who has been acting as secretary to the recent United Nations Seminar on Regional Planning held in Tokyo in August, which will be reported upon in the November EKISTICS. Antonio Kayanan summarizes a position on planning for developing nations or areas. One critical aspect of such planning in many countries is that of water resources which has been dealt with in several United Nations publications and more particularly in the ECAFE report on the potentialities of the international Lower Mekong River Basin.

In the construction section Bruce Martin points out the dangers of holding too firmly to traditional or localized practices while undertaking advanced construction techniques. Roofing is perhaps the key element in shelter, and asphalts have become an important roofing material in many countries. One problem, however, has been the advance evaluation of alternative mixtures for use in a given climate. The highly developed evaluative test of Wilkenson, Striker, and Trexler is therefore very welcome.

The General section includes United Nations discussions on industralization, demographic conditions and trends, and certain conditions in the biotic environment are other components of broad developmental planning. So too is the complex of trade and urbanization, ambitously postulated by Gibbs and Martin.

Finally a word on the new appendix. This issue contains in a condensed form the program prepared for Doxiadis Associates for developing a deserted area in the center of Iraq some 37 miles south of Baghdad, some 290 sq miles of near desert have already been crisscrossed with new irrigation canals, from oil funds administered by the Development Board. Within the near future this area will support an initial population of some 20,000 settled in 21 villages and a new central market town. In a generation or so this initial population is expected to double itself. The 35 page abstract describing the Problems Policies and Program worked out for this area is axtracted from a series of volumes presented to, and accepted by, the Iraqi Development Board. The final volume outlining the exact financial provisions is the only part of the total report which has been omitted.

EKISTICS is compiled by Yvette and Lawrence Mann under the direction of Prof. J. Tyrwhitt. Enquiries or comments should be addressed to 7 Sumner Road, Cambridge, Massachusetts, USA.

NOTE: The lettering at the top of each page refers to Doxiadis Associates system of classification. The figures below each title refer to the Universal Decimal Classification.

HOUSING

D.E.K.L.

Fujioka, Michio
THE FARMHOUSES OF TAIRA AND SHIRAKAWA
Shinkenchiku, 33:4, April 1958. pp. 38-43. Illustrations.
728.03 : 631.2 (52)

1. This is a description of a group of unique Japanese farmhouses located in villages along the Sho River. They are huge farmhouses with high gabled roofs which are very steep and thatched. The term gassho-zukuri or "hands-placed-together architecture," has been applied to them, likening the roofs to the position of the hands in prayer. The villages of Taira and Shirakawa are very remote, and it only recently been possible to reach them by automobile. They are located in the old province of Hida.

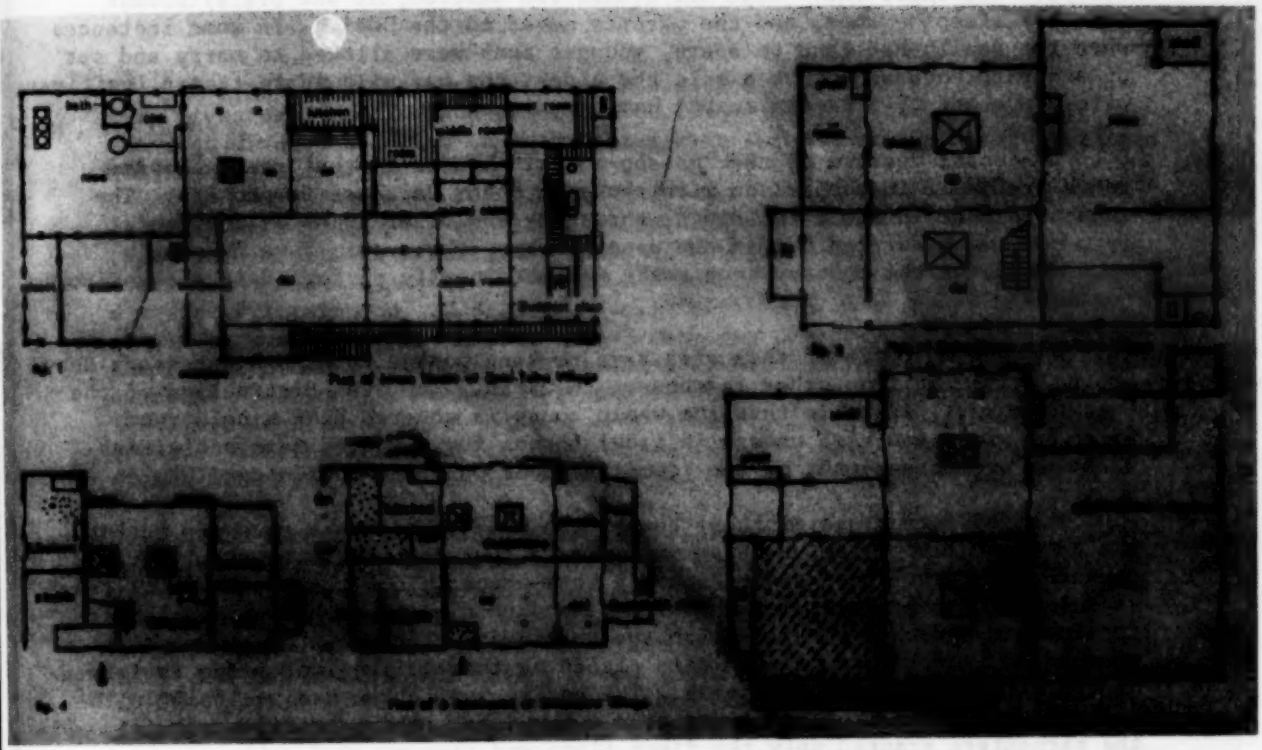
2. There are many traditions associated with these magnificant and distinctive farmhouses. For centuries it was believed that their great gabled roofs were similar to those of the prehistoric Japanese pit houses. But recent scholarship reveals that the structural system of the Hida roofs is quite different from that used for the early earth pit dwellings.

3. It is now thought that they are a special type developed in connection with the "great family" system in this area. It seems that both the "great family" system and the huge patriarchal houses developed primarily because the inhabitants of the area were forced by the lack of arable land to turn to secondary occupations, especially sericulture (the manufacture of raw silk). After the appearance of the practice of raising silkworms, toward the end of the 17th century, all members of a "great family" came to be put to work at the several stages of the silk producing industry. The houses had to be expanded to meet their new space needs.

4. To meet the needs of these large and multi-connected families, floor plans of the houses are very complicated. The central rooms are usually a sort of living room, called a "dei," and a hearth-room or kitchen, called the "oe." On one side of these there is a cluster of rooms including a guest room with tatami mats, and a room for the Buddhist altar. (The Shin Sect of Buddhism has long been very active in the valley, and virtually every one of the houses has its own altar.) On the other side is an unfloored room called a "niwa" (colloquial for garden) and a stable. Some of the houses in the region appear to be about 250 years old, and the existence of the low "choda" entrance indicates a relation to the aristocratic houses of about that period. (Where such a door is not found, its name has been applied to the sleeping room.)

5. Under the large-family system only the head of the family and his wife ate in the "oe" while the rest of the family had their meals in a room behind the "oe" called the "daidoloro." When this latter room was small, the eldest son or the younger brother of the head of the house also ate in the "oe," but, in principle, this was the patriarch's own private living room, and the "daidokoro" was for the other members of the family. The head of the house also received guests in the "oe." The room with the Buddhist altar was used only for special religious ceremonies, including weddings and funerals. Otherwise it has little connection with the daily life of the family. The sleeping rooms were used only by the head of the house, his wife and his daughters. The sons, with the exception of the eldest, slept in various places on the second floor. As a rule the master and his wife slept near the entrance to the sleeping rooms, but when the latter was divided into two sections, they

Shinkenchiku, April 1958.



Toyama House at Shirakawa Village

D.E.K.L.

Fujioka, Michio
THE FARMHOUSES OF TAIRA AND SHIRAKAWA
Shinkenchiku, 33:4, April 1958. pp. 38-43. Illustrations.
728.03 : 631.2 (52)

1. This is a description of a group of unique Japanese farmhouses located in villages along the Sho River. They are huge farmhouses with high gabled roofs which are very steep and thatched. The term gassho-zukuri or "hands-placed-together architecture," has been applied to them, likening the roofs to the position of the hands in prayer. The villages of Taira and Shirakawa are very remote, and it only recently been possible to reach them by automobile. They are located in the old province of Hida.

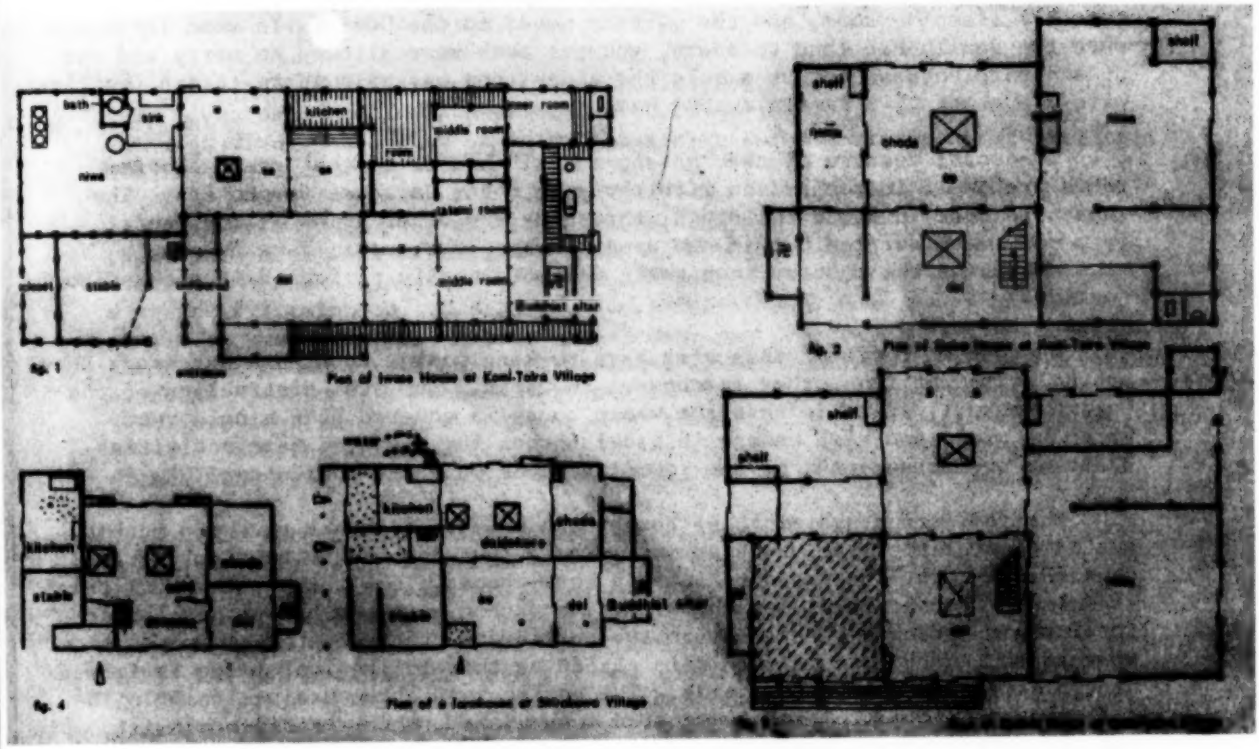
2. There are many traditions associated with these magnificant and distinctive farmhouses. For centuries it was believed that their great gabled roofs were similar to those of the prehistoric Japanese pit houses. But recent scholarship reveals that the structural system of the Hida roofs is quite different from that used for the early earth pit dwellings.

3. It is now thought that they are a special type developed in connection with the "great family" system in this area. It seems that both the "great family" system and the huge patriarchal houses developed primarily because the inhabitants of the area were forced by the lack of arable land to turn to secondary occupations, especially sericulture (the manufacture of raw silk). After the appearance of the practice of raising silkworms, toward the end of the 17th century, all members of a "great family" came to be put to work at the several stages of the silk producing industry. The houses had to be expanded to meet their new space needs.

4. To meet the needs of these large and multi-connected families, floor plans of the houses are very complicated. The central rooms are usually a sort of living room, called a "dei," and a hearth-room or kitchen, called the "oe." On one side of these there is a cluster of rooms including a guest room with tatami mats, and a room for the Buddhist altar. (The Shin Sect of Buddhism has long been very active in the valley, and virtually every one of the houses has its own altar.) On the other side is an unfloored room called a "niwa" (colloquial for garden) and a stable. Some of the houses in the region appear to be about 250 years old, and the existence of the low "choda" entrance indicates a relation to the aristocratic houses of about that period. (Where such a door is not found, its name has been applied to the sleeping room.)

5. Under the large-family system only the head of the family and his wife ate in the "oe" while the rest of the family had their meals in a room behind the "oe" called the "daidoloro." When this latter room was small, the eldest son or the younger brother of the head of the house also ate in the "oe," but, in principle, this was the patriarch's own private living room, and the "daidokoro" was for the other members of the family. The head of the house also received guests in the "oe." The room with the Buddhist altar was used only for special religious ceremonies, including weddings and funerals. Otherwise it has little connection with the daily life of the family. The sleeping rooms were used only by the head of the house, his wife and his daughters. The sons, with the exception of the eldest, slept in various places on the second floor. As a rule the master and his wife slept near the entrance to the sleeping rooms, but when the latter was divided into two sections, they

Shinkenchiku, April 1958.



Toyama House at Shirakawa Village

occupied the inner one. When the eldest son married, he and his wife took over the sleeping room, and the parents moved to the "dei." In some instances when the family had land to spare, younger sons were allowed to marry and set up separate houses, but as a rule the eldest son was allowed to take a legitimate wife. Much of this family system has now broken down.

6. A special feature of the "gassho-zukuri" houses is that the unfloored rooms are small in comparison with those in other Japanese farmhouses. The reason is that in these buildings, threshing and other types of incidental farm work were carried out in the upper floors, whereas in farm houses in other parts of the country such tasks were ordinarily performed in the unfloored section.

7. The gabled roofs of this area have no king posts, but in this respect they are no different from other farmhouses in Japan. The real distinction of the "gassho-zukuri" style is that the whole house is covered by a single roof, which is steep and high enough to provide room for assorted farm activities. Whatever the arrangement of the rooms there is only one roof ridge.

8. The roof structure of these houses was made by a rather advanced method. Due to their size, the V-shaped roof frames (gassho) had to be firmly braced. Consequently, purlins (gassho-tsunagi) were placed along the points where the crossbeams (gassho-bari) met the frames, and then x-shaped braces were added for further strength. Parallel to the purlins and between them, more poles were added, and bamboo rafters were placed on these. The roof ridge is formed of two or three long bamboo poles. The entire roof structure was built without using nails: all joints were tied with vines. When a house was built, the carpenters erected only the first floor and then retired while a mutual-aid group (hui) erected the roof. Each member of the community belonged to a group of this sort. The labor furnished by the group was cooperative and free of charge and was an important element in the community life.

9. The art of building these houses still remains. In one village, the whole settlement was destroyed by fire sixty years ago. The eleven houses were all rebuilt since that time, but "they are no less beautiful in the aggregate than the older houses of the region." Slowly, as transportation becomes cheaper and easier, these houses have begun to change; and the first sympton seems to be a refusal to keep up the characteristic thatch roofs when cheap tile become available.

10. Two or three other small communities in the valley remain today very much as they must have looked before modern times. But the construction of roads and a dam in the area are forcing them to give way under modern "improvements." No doubt some of the houses will be classed as cultural monuments and protected from drastic change, but they will be only isolated structures. The sight of a whole community composed of these mammoth structures will soon be only a memory.

D.E.

Kano, Hisaakira
JAPANESE DWELLINGS OF THE PAST
in Lecture, "Housing in Japan" delivered in Tokyo, Feb. 10, 1958. 10 pages.
728.02 (52)

1. As a prelude to a discussion of public housing in Japan, Mr. Kano has here given us a concise and compact picture of the evolution of housing in the most developed nation in Asia. Hisaakira Kano is President of the Japan Housing Corporation.

2. The ancient peoples who lived in the islands of Japan in prehistoric times were much like primitive peoples of other races in that they underwent hunting and nomadic phases of social development before turning to farming as a means of livelihood. Dwellings necessarily became more permanent as the people became agrarian. Modern researchers say that traces of the earliest forms of shelter for the ancient Japanese (shallow pits in the ground, either circular or oblong, thatched over with twigs and grass) remain even today. These pit-dwellings, which were usually about fifteen feet across, are believed to have been the standard form of housing in Japan until about the seventh or eighth century.

3. Since the dominant kind of farming was wet-paddy rice cultivation, most granaries were built with floors high off the ground to keep moisture from the scarce food. But the practice of making dwellings with the floor above ground level (the influence of Chinese architecture) began to appear only very gradually about this time, starting with the homes of the rich and powerful. The gap between the ruling class and the farming population made the popularization of this new type of construction even slower.

4. The twelfth and thirteenth centuries saw several changes. First, there was the rise of a new ruling class, the "buke" warriors. At the same time a bureaucracy began to develop in the more complex society, pivoting around communities ruled by the landed gentry and their warrior retainers. Also, a central government was evolved with its seat in the capital cities of Nara and Kyoto, which were laid out in the Chinese tradition.

5. With the development of cities, shops and urban dwellings to accommodate merchants and artisans appeared. These can be seen today in the ancient scroll paintings and writings. But these dwellings were of very primitive construction, very small (having not more than 3 or 4 meters of frontage), and with roofs of rough boards or thatching weighted down with stones. Only partly furnished with wooden planking for floors, these hovels were not much of an advance over the pit-dwellings of prehistoric times. There were no two-story structures, and these urban dwellings were even smaller than the ancient huts. It is thought that the average farmer's dwelling was a hut of about 16.5m^2, with part of the floor devoted to a raised board platform as sleeping quarters.

6. The warrior class, the highest level of society, lived in housing generally similar to the "Shinden" style structures of their predecessors, the landed aristocracy. At the same time there was a notable simplification of style and construction, ending in the development of the "buke" and "shoin" styles. There are buildings from this era remaining even today, and it is

clear that a distinction was made between living space and reception halls in the upper class architecture of the "buke"--reflecting the ostentatious formality, the feudalistic thinking and manners of these times.

7. The rise of the merchant and artisan classes from about the end of the Muromachi Period (15th century to mid-16th century) saw the appearance of wealthy businessmen in Osaka and other trade centers. The influence of these men, together with that of Zen (the then new religious thinking which exercised a strong hold on important military rulers), resulted in the creation of the "chashitsu" or tea room style. With utmost simplicity and austerity, this style provided a retreat for calm contemplation, away from the rich and varied turmoil of the world outside. This positive approach toward quietude is a significant feature of the Way of Tea and its related arts.

8. This same trend was manifested in Japanese residential architecture as the "sukiya" style. With a matured feudalism under the Tokugawa Shogunate, and with warfare banished for 250 years, there was a great upsurge of urban activities. A wealthy class of townspeople (rich merchants, moneylenders, and craftsmen) developed. And while the Shogunate and its bureaucracy built luxurious dwellings on a grandiose scale (regional feudal lords were required to maintain great mansions in the capital city of Edo), the newly ascendent commoners also devised better homes for themselves. The common man's house was less ostentatious, but it often showed great elegance in a restrained way.

9. Congestion resulted from the growth of cities (especially in the commercial districts), and the frequent fires led to the development of the "dozo" or "plastered wall warehouse" style. Thus up to the early days of the Meiji Era (1868-1912) a rather ponderous structural pattern set the general tone of large Japanese cities.

10. Although great advances are indicated by the homes of the rich in this period the dwellings of the masses remained at very low standards. In farmhouses, the floor plan usually included two portions, one without any flooring, and the other partitioned into two or more rooms for living and sleeping. The usual merchant's shop in the cities was also made up of a single story structure with a dirt floor section in which the kitchen was located and a floored portion for living quarters. The existence of the uncovered dirt floor as an integral part of the dwelling is reminiscent of the pit-dwellings of ancient times; and there is a fundamental difference in conception from the "shoin" or "sukiya" styles which prevailed in the dwellings of the ruling class.

11. With the birth of modern Japan, 90 years ago, the re-opening to the outside world and the overthrow of the feudalistic Shogunate, industrialization began. At the same time the well known housing shortages began to appear, and some workers were housed under terrible conditions. The earthquake of 1923 complicated the shortage, as of course did mobilization and war. Government provision of housing began about 1940 and has since increased--bringing with it several new styles of dwellings.

. D.E.K.L.

Peralta, Helga, and Smith, Alan.
PROYECTO EXPERIMENTAL DE VILLA BANQUETA
(THE VILLA BANQUETA EXPERIMENTAL PROJECT)
Issued by CINVA (Inter-American Housing and Planning Center), 1957, 81 pages.
Text in Spanish with photographs, plans and tables.
728 : 711.58 (72)

1. This is a final report prepared by Social Worker Helga Peralta and architect Alan Smith for the Institute of Economic Development of Panamá. It deals with an experiment in the provision of Aided Self-Help rural housing.

2. Three years ago the rural housing and planning program of Panamá was founded, and from the outset the principal objective of the program was to provide homes for small farmers by means of economic and technical assistance and to encourage the system of Aided Self-Help. Until the beginning of 1956, however, there was no real program capable of complementing the methods of the system; and the goal was only partially realized.

3. Following an evaluation of the work done by the rural housing experts and an analysis of difficulties which had appeared, it was decided that a project should be undertaken in which a rural housing nucleus would be built. An application of the principles of Aided Self-Help, this project was to be carried out under the Institute of Economic Development (Instituto de Fomento Económico or IFE).

4. The project was entitled the Villa Banqueta Experimental Project, and it was based on principles set forth in a Manual para la Organización de Proyectos Pilotos de Ayuda Propia y Ayuda Mútua en Vivienda, prepared by a Puerto Rican group and published by CINVA in 1955.

5. The site for the settlement of Villa Banqueta, on the outskirts of the town of Las Tablas in Panama's Province of Los Santos, was chosen for its special characteristics. There were a total of fourteen families, who had built their homes on State lands and maintained a bare existence from marginal agriculture. Although the family ties were quite loose and the agricultural methods were very primitive, the residents had a custom of cooperative "juntas" which set a favorable climate for the mutual assistance project.

6. The conditions before the initiation of the project are described by Peralta and Smith in very considerable detail. A widespread publicity campaign was directed toward municipal authorities, civic and cultural institutions, and the families. And it was through such efforts that they were able to prepare the ground and obtain the necessary support to carry out the project.

7. A total of seventeen houses were built, the sites for which averaged between 550 m^2 and 600 m^2. And the total time required for this effort was only 150 days. At the same time construction experiments and educational social field work was being carried out.

8. One feature of the experimental project was the enthusiastic support it got from women and children. Responsible for fully 50% of the actual construction, their help cut down the expected construction time by four weeks.

Peralta, Helga, and Smith, Alan. The villa Banqueta experimental project -2

The Work of the Institute of Economic Development

8. The IFE carried out the following tasks:

a. Effecting preliminary studies
b. Organizing the community of Las Tablas for participation in the project
c. Elaborating a detailed and complete program for the realization of the project.
d. Extending loans of US$250.00 to each family for the acquisition of construction materials
e. Organizing and directing the process of self-help and mutual aid employed in the project
f. Designing the nucleus of housing and the typical houses
g. Assuming the technical direction of the work and controling the repayment of loans toward the end of construction
h. Coordinating a program of social assistance in the education, economic, sanatary and farming aspects.
i. Assigning the technical personnel and foremen
j. Furnishing the machinery and tools necessary for the execution of the work.

The Roles of the Participating Families

9. The families participating in the project were responsible for the following:

a. Responding to the IFE loan of US$250.00 (spelled out in monthly payments of US $5.00, which were paid to the local IFE agency)
b. Designating one adult representative per family who would work on the construction until completion for three days each week, obligatory and without payment
c. Submitting to the organization of the work instituted by the responsible technicians
d. Accepting the types of dwellings, designs and construction systems indicated by the technicians.

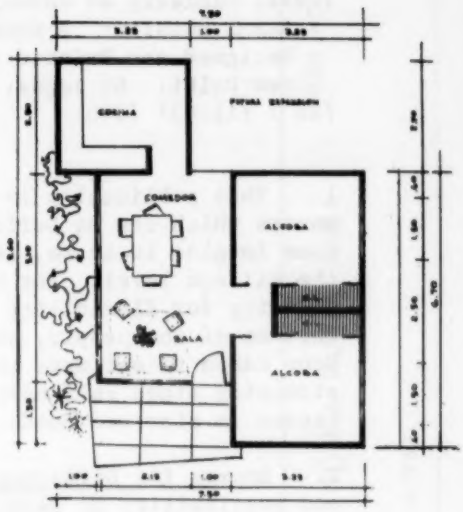
The Dwelling Types

10. Two types of houses were studied for the project. They had either two or three bedrooms, a living-room/dining-room, a kitchen and a portal. The toilet and bath were separated from the house. Construction was the same for both types. Walls were built with Lancrete blocks (0.12 x 0.20 x 0.30 cm.) except in two houses, where soil-cement blocks of 1:20 were used. Beams were of reinforced concrete, and roofs combined cedar, mangle and earth tiles. The floors were concrete. The costs were as follows:

Item	House Type 2A	House Type 3A
Foundations	US $ 32.69	US $ 37.88
Floors	33.32	38.77
Walls	9.92	12.10
Columns (of portal)	1.46	2.13
Beams	33.39	32.08
Roof	100.92	117.36
Doors	18.62	25.72
Prefabricated parts	5.55	5.55
Paint	6.38	8.13
TOTAL	US $ 242.25	US $ 279.72

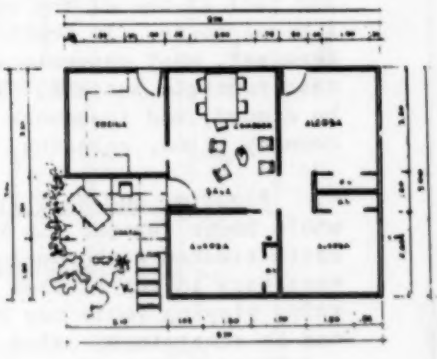
VIENDA TIPO 2 A.
PROYECTO DE
VILLA BANQUETA

FACHADA



PLANTA

FACHADA



PLANTA

"CASA TIPO 3A"
PROYECTO DE
VILLA BANQUETA

E.K.S.

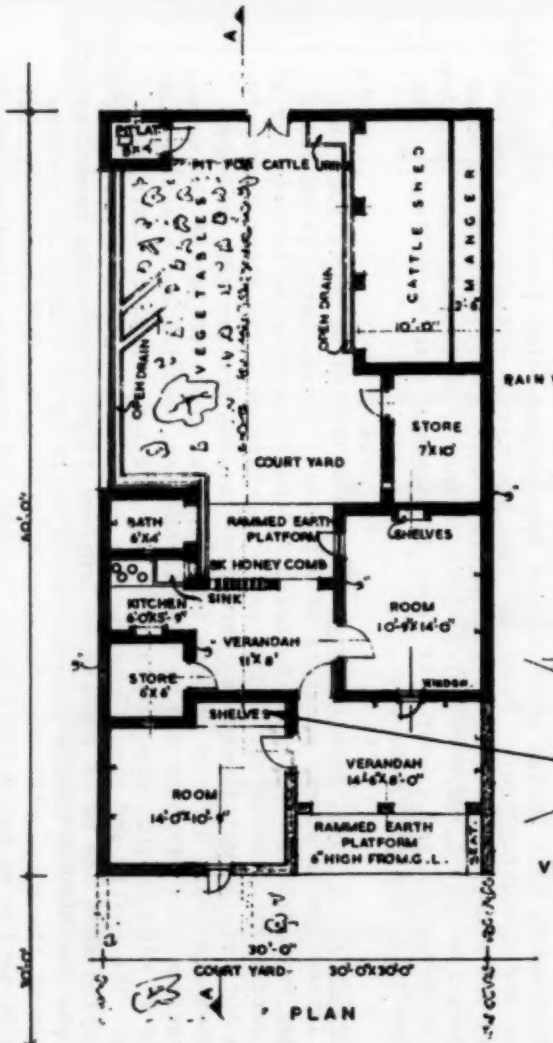
India, Ministry of Works, Housing and Sypply
RURAL HOUSING: A DRAFT MANUAL
Designed and Printed by the Manager, Govt. of India Photo-Litho Press, New Delhi. 60 pages.
728 : 711.437 (540)

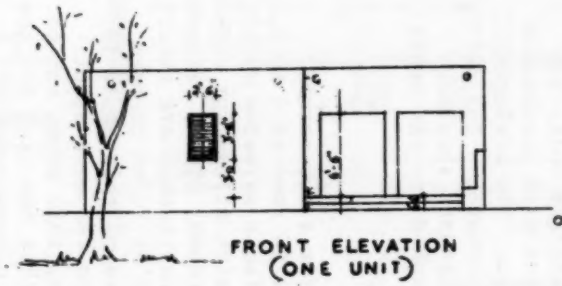
1. This publication is an attempt to suggest typical village layouts and houses which can be built. Pointing out that village life is not all that some imagine it to be, it is felt that sound work is needed immediately at the village level. The house designs must be considered as indicative only--allowing for flexibility in varying climates and habits, requirements, and customs of the people, and different materials available locally. Care has been taken to estimate the costs of the house type designs as low as possible, stressing aided self-help housing; and most designs are expandable with increase in size and needs of the family.

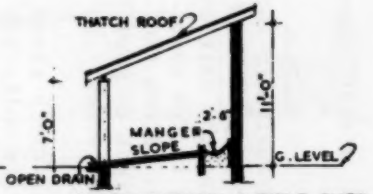
2. Houses for Different Regions. There are three distinct zones of climate and availability of materials in India: the Northern plains, the Coastal regions (including Bombay, Calcutta and Madras), and the hilly areas. In the north the summers are hot, the winters cold and the rainfall low. Heavy construction is necessary for comfort, and either burnt bricks or stabilized mud walls can be used. The hot and humid climate of the coastal areas have high rainfall, fine bamboos, ballies, palmira and local timber fairly cheap. Light structures of these materials, with a sloping roof, are recommended for such areas. In the hilly regions, with their temperate climate and heavy rainfall, waterproof roofs must be provided and the plinth of the building must be high enough to keep away the moisture. The houses can be either elevated on wooden posts (as in Assam) or constructed on a pucca (permanent construction) masonry plinths. Roofs must be sloped and can be made of tiles or of asbestos sheets.

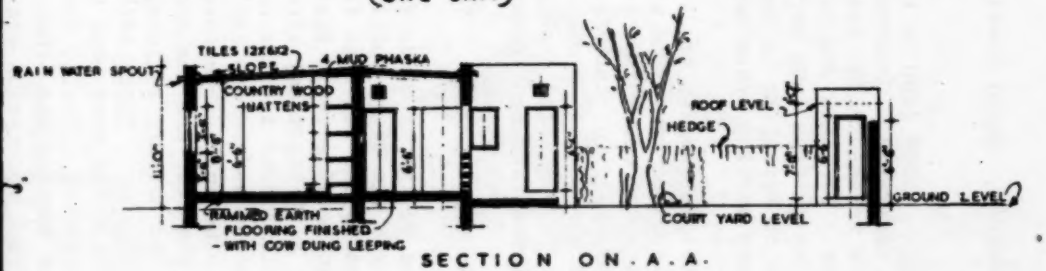
3. Type of Wall Construction. The pillar and panel type of construction is felt suitable for villages in all three zones. The pillars can be of brick or stone, but wooden or precast concrete posts are also acceptable. In the North the panels may be of stabilized earth or sun-dried bricks and in coastal regions of woven bamboo or ordinary chatai matting. As funds permit, these can be replaced later with bricks. The roof load (either flat or sloping) is taken by the pillars and therefore any type of kutcha (temporary construction) panels which can be devised by the farmer will not endanger the structure. The roof is one of the most expensive and difficult items of construction in a rural house. In North India, where flat brick roofs are preferable, the cheapest, most convenient method is to support the bricks by wooden or precast concrete battens. In coastal regions and hilly areas, where roofs must be sloped, the framework may be of ballies or bamboos and the covering of country tiles, asbestos, or galvanized iron sheets.

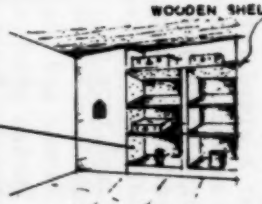
4. Flooring and Wall Protection. To economise on cost, the flooring of the whole house (except the kitchen and the washing-place) may be of stabilized earth treated with cow-dung. Pucca flooring with cement or stone slabs is necessary in the kitchen and the washing-place. To project mud walls from rain, sloping roofs may be given extended eves and the height of side-walls can be restrained. Also, a reportedly water-proof plaster (mixture of mud and 5% Bitumen emulsion) is being evolved by the Karnal Soil Research Laboratory (East Punjab). Doors and windows can be of local wood, and these should be held to a minimum if the cost is to be kept down.

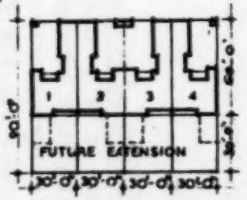












1 PORTION SHOWN THUS ▬ CAN BE BUILT UP AT FIRST STAGE
2 PORTION SHOWN THUS ▬ CAN BE BUILT UP AT SECOND STAGE
3 FUTURE EXTENSION FOR THE THIRD ROOM SHOWN IN DOTTED.

TWO ROOMED HOUSE WITH A CATTLE SHED FOR A RURAL AREA
(BY STAGES)

DRG. NO. 7.

SCALE 0 2 4 6 8 12 16 20 IN FEET

India, Ministry of Works, Housing and Supply. Rural housing: a draft manual -2

5. The Need for Single-Storeyed Houses. Since land is inexpensive in rural areas, single-storeyed construction is desirable. Generous courtyards in front and back can be allowed; and they are necessary for erecting the cattle-shed, storage for fodder and food grains. Families are large in the rural areas and tend to remain with their parents for quite a long period. Since the social pattern involves the segregation of sexes, it is important to provide a certain measure of privacy and adequate working space for the women.

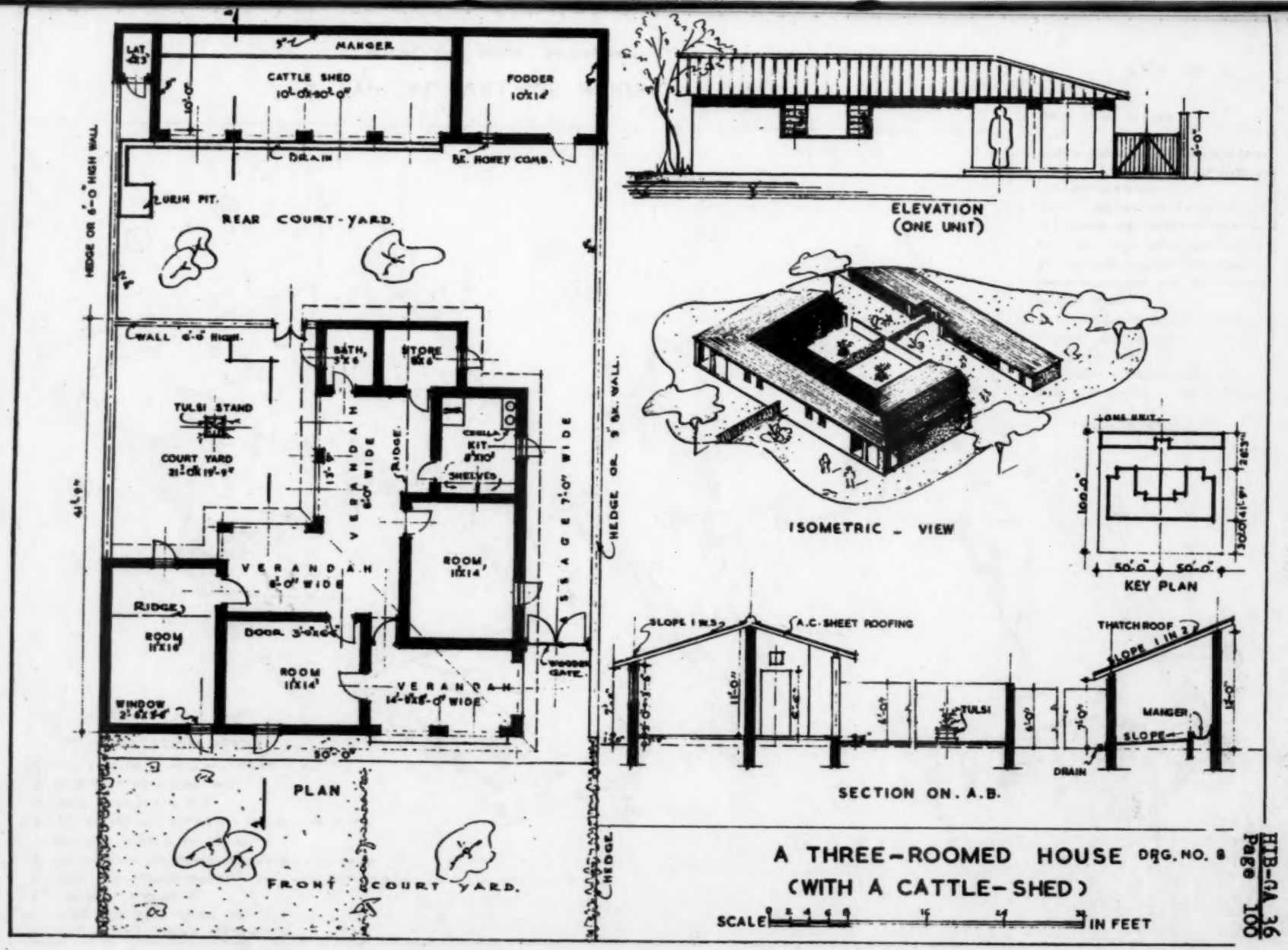
6. Environmental Hygiene. While individual houses are kept fairly clean, the standard of environmental hygiene is quite low. The village well, for example, is potentially a fine centre for the community; but with inadequate drainage it becomes, dirty, stagnant and mosquito infested. The arrangement of houses is also important, and houses should not be overcrowded. But neither should houses be overly spread out: It is suggested that houses should be built in rows for the low and middle classes and semi-detached for the upper classes.

SUGGESTED PLANS

7. Design for a Two-Roomed House. The design provides for a two-roomed house on a plot of 30' x 90'. Such houses are to be built in rows of 6 to 8, so that economy in the cost of common walls and services (such as water supply, sanitary and electric installations) can be effected. Design allows for construction in two stages: in the first, a living room, kitchen, store, verandah, bath and latrine, plus a store for cattle fodder and the cattleshed are built; in the second stage, an additional room and a verandah can be added to make the house suitable for a large family. The special feature of this house is that the women-folk get the privacy in the rear and the men can move about freely in the front portion. Suitable for hot-dry regions, this house can be built in the pillar-panel type of construction. Pucca bricks are used for the pillars. The flat roof consists of brick tiles over wood battens with 4" thick mud-phuska for summer and winter comfort. Small, iron-barred windows are provided in this design which can be adapted for other regions with larger windows and a sloping roof. Front and back courtyards are spacious and can be used for sleeping, sitting or raising vegetables. The cost of the house will vary from Rs. 2,600/- to Rs. 3,400/- depending on location and relative costs of materials and labour. If labor is provided free by villagers, the cost may be as low as 1,300/-Rs.

8. Design for a Three-Roomed House. Placed on a plot of 50' x 100' this house is semi-detached and consists of a kitchen, store, bath, large front and rear verandahs and a paved courtyard. Separate provision is made for a large cattle shed, store for fodder and a pit-latrine. The front courtyard (30' x 40') can be multi-purpose, providing an area for men and children. The inner courtyard affords privacy for the several activities of the women. The spacious rear verandah can be used for dining, working and sleeping. A passage 7' wide in the rear courtyard allows for the passage of carts and cattle. The pillar and panel construction using local materials may be adopted. The sloping roof can be of country or Manglore tiles or asbestos cement sheets, while the roof of the cattle shed may be of tiles or of thatch for economy. The cost of the house will vary from Rs. 6,300/- to Rs. 8,400 normally, but it can be as low as Rs. 3,150/- to Rs. 4,200/- if labour is provided free by the villagers.

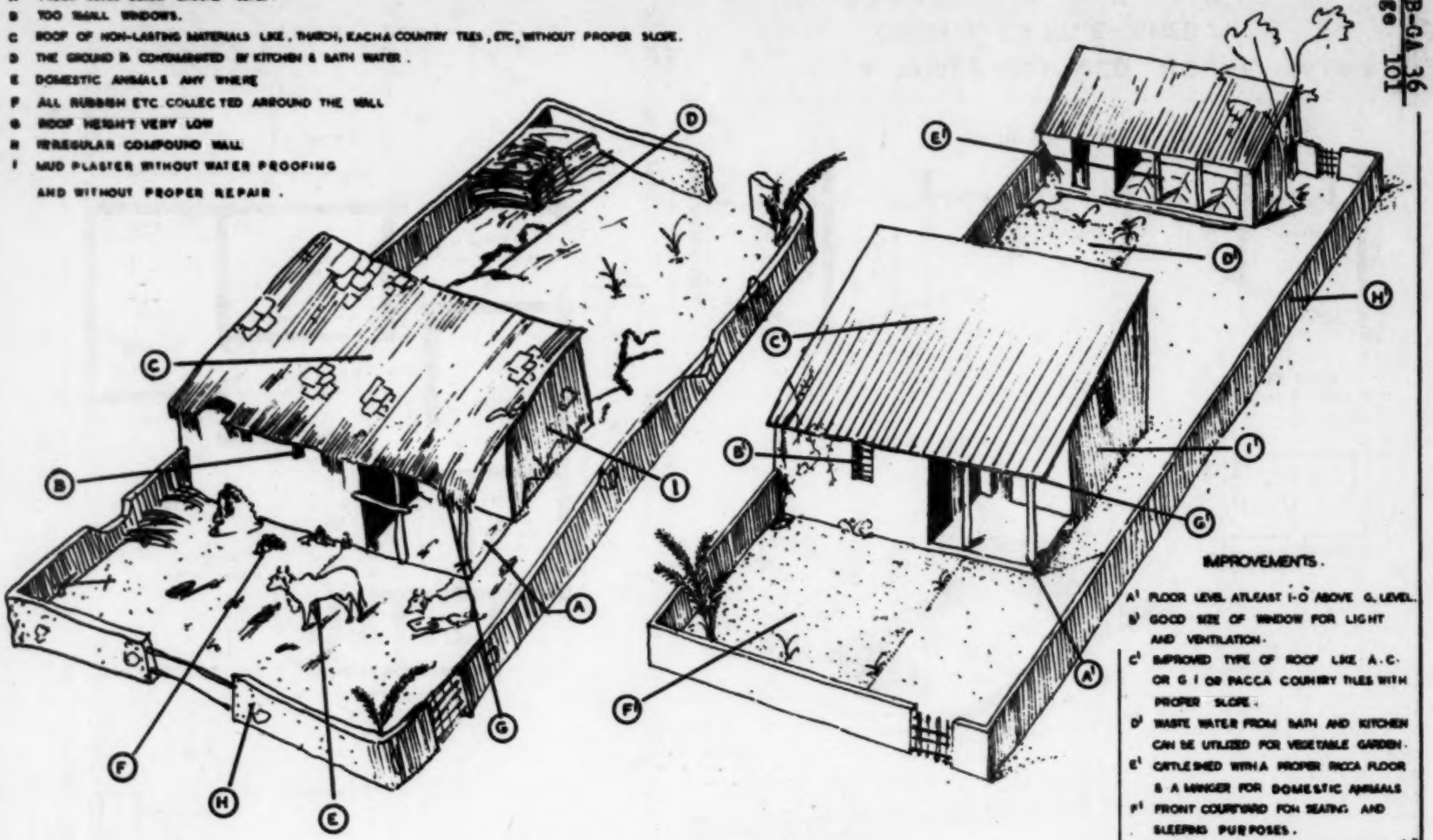
Rs 5 = approx $(US)1.00



HIB-GA 36
Page 100

AS EXISTS TO-DAY.

A FLOOR LEVEL BELOW GROUND LEVEL.
B TOO SMALL WINDOWS.
C ROOF OF NON-LASTING MATERIALS LIKE, THATCH, KACHA COUNTRY TILES, ETC, WITHOUT PROPER SLOPE.
D THE GROUND IS CONTAMINATED BY KITCHEN & BATH WATER.
E DOMESTIC ANIMALS ANY WHERE
F ALL RUBBISH ETC COLLECTED ARROUND THE WALL
G ROOF HEIGHT VERY LOW
H IRREGULAR COMPOUND WALL
I MUD PLASTER WITHOUT WATER PROOFING AND WITHOUT PROPER REPAIR.



IMPROVEMENTS.

A' FLOOR LEVEL ATLEAST 1-0 ABOVE G. LEVEL.
B' GOOD SIZE OF WINDOW FOR LIGHT AND VENTILATION.
C' IMPROVED TYPE OF ROOF LIKE A.C. OR G.I OR PACCA COUNTRY TILES WITH PROPER SLOPE.
D' WASTE WATER FROM BATH AND KITCHEN CAN BE UTILIZED FOR VEGETABLE GARDEN.
E' CATTLE SHED WITH A PROPER PACCA FLOOR & A MANGER FOR DOMESTIC ANIMALS
F' FRONT COURTYARD FOR SEATING AND SLEEPING PURPOSES.
G' SUFFICIENT HEIGHT AT THE END, ATLEAST 6-6
H' PROPER COMPOUND WALL WITH WOODEN GATE.
WATER PROOF PLASTER.

A TYPICAL VILLAGE HOUSE

BEFORE AND AFTER IMPROVEMENTS

DRG. NO. 9.

PLANNING

D.G.K.N.O.

India, Ministry of Works, Housing & Supply
VILLAGE LAYOUT PLANS
in Rural Housing: A Draft Manual. Govt. of India Press. 60 pages. Illus.
711.437 (540)

1. In the context of the rural and village housing undertaken by the Community Projects Administration of India some interesting ideas for village and village centre layout have been set down. We can present but a few of the ideas here, but they will give an idea of the quality of the work being done.

For a Small Village

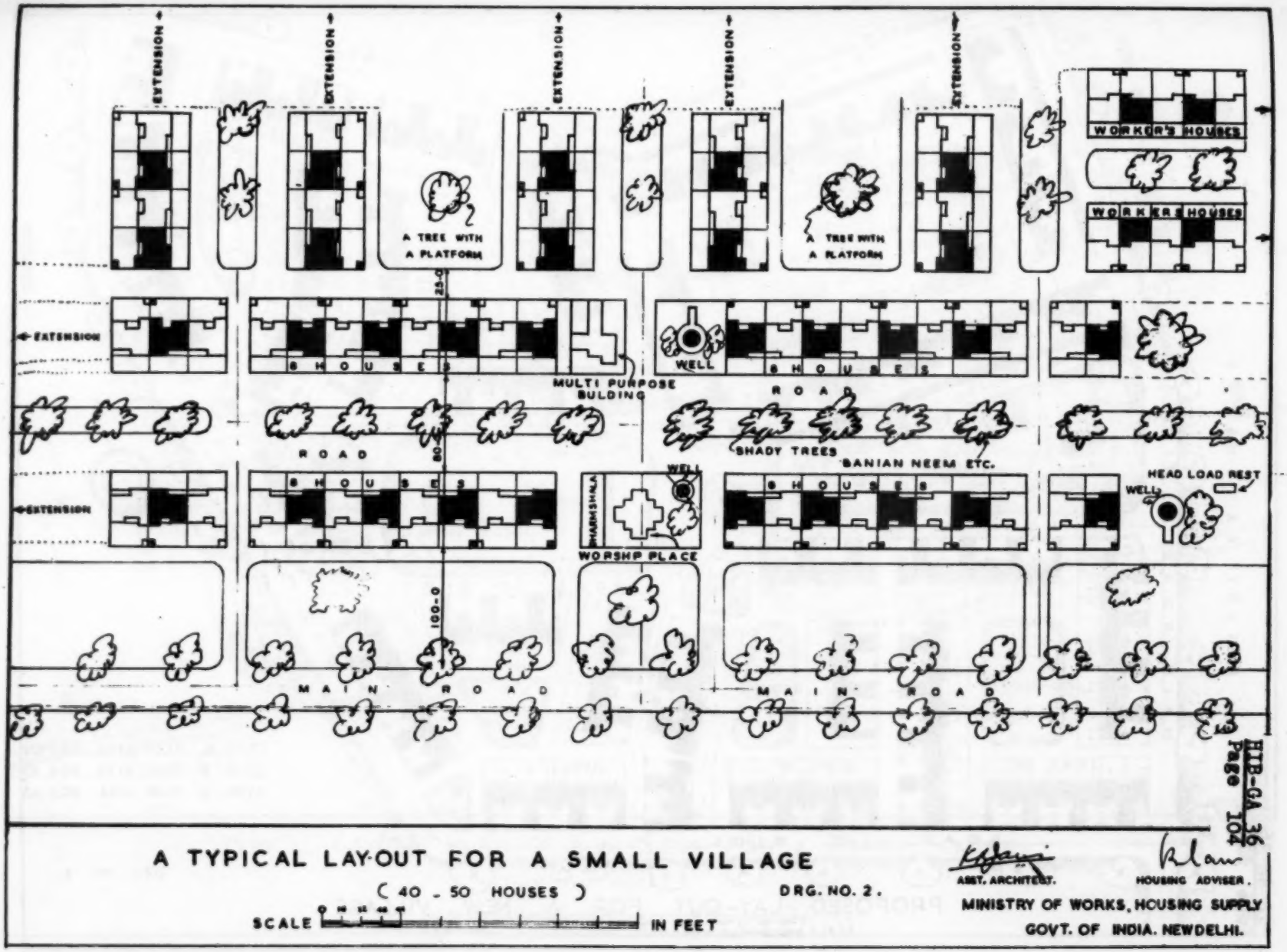
2. This is considered a typical layout plan for a small village of 40 to 50 houses. The plan shows the arrangement and location of the houses and also the community buildings, such as a worship place, dharamsala, etc. Spacious open lawns have been provided and the houses have been arranged in rows of six to eight, in order to save on the cost of common walls and services such as sanitary, water-supply and electric installations. This pattern of row housing also gives a sense of community feeling. Making provision for future expansion, this plan can be modified to suit local conditions, topography, the proved needs of the inhabitants and the availability of materials.

For a New Large Village

3. A typical layout plan for a new village which would provide for 176 houses. The special features of this plan are that the villagers of different income groups have been grouped and common facilities (such as schools, health centre, place of worship and village hall, shops, etc.) have been given central locations. House are to be built in rows of six to eight, in order to save on common walls and services. There is provision for future expansion, and a network of roads has been provided within the village and connected to the main roads.

For a Nucleus Mandi Centre (Hilly Area)

4. Showing a typical layout plan of a nucleus Mandi centre in a hilly region of scattered settlement, the layout has been designed to suit the topography of the area. Provision has been made for residential buildings for lower, middle and higher income groups and also for a community centre, shops, post-office, school, hospital, police-post, etc. The commercial buildings have been located in a separate area away from the residential colonies. Space has been provided for future expansion of the centre. (This layout was made by the Chief Architect, C.P.W.D. for a village in the Bilaspur District).



A TYPICAL LAY-OUT FOR A SMALL VILLAGE

(40 - 50 HOUSES)

DRG. NO. 2.

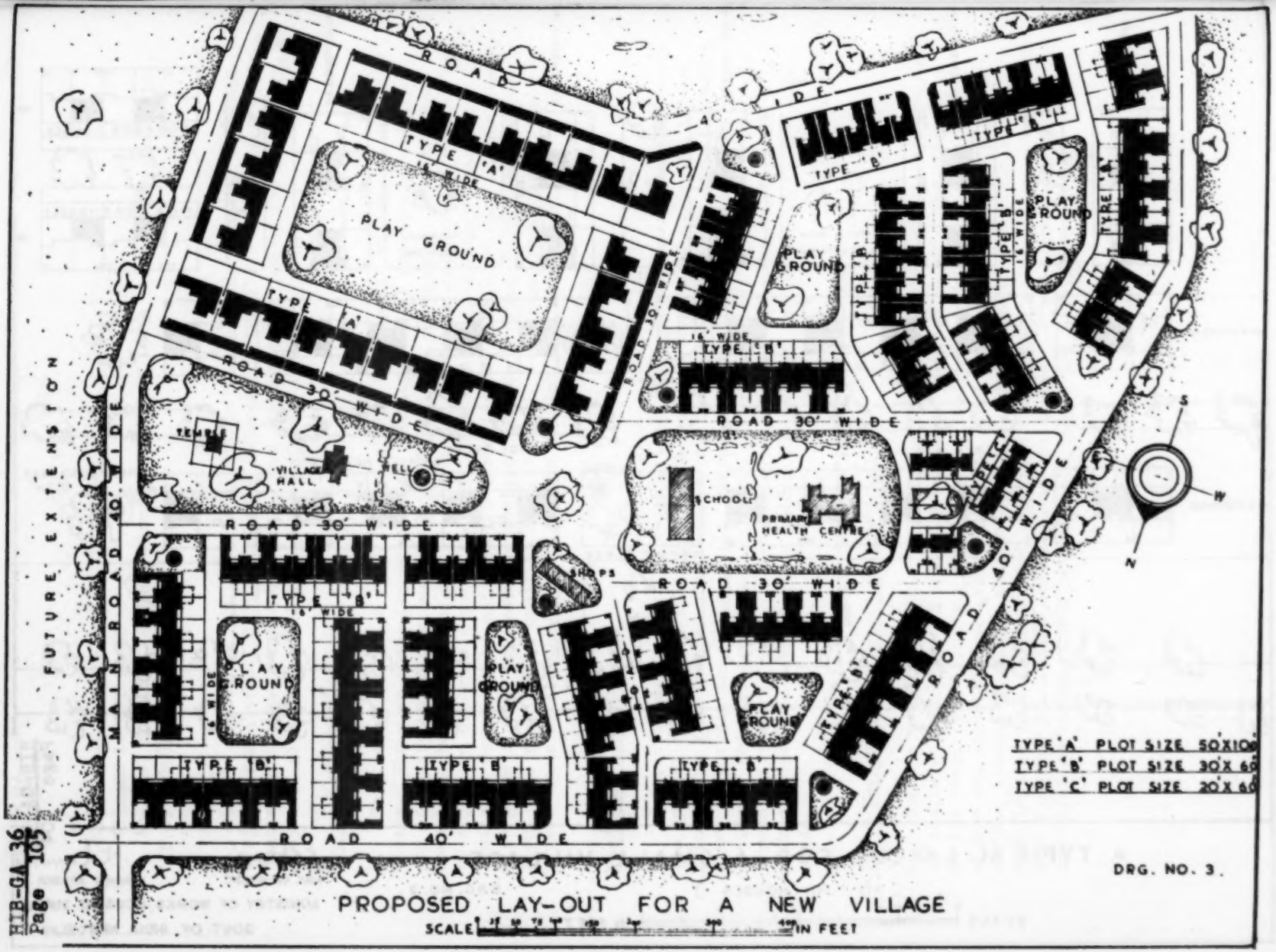
SCALE 0 10 20 30 40 IN FEET

ASST. ARCHITECT.

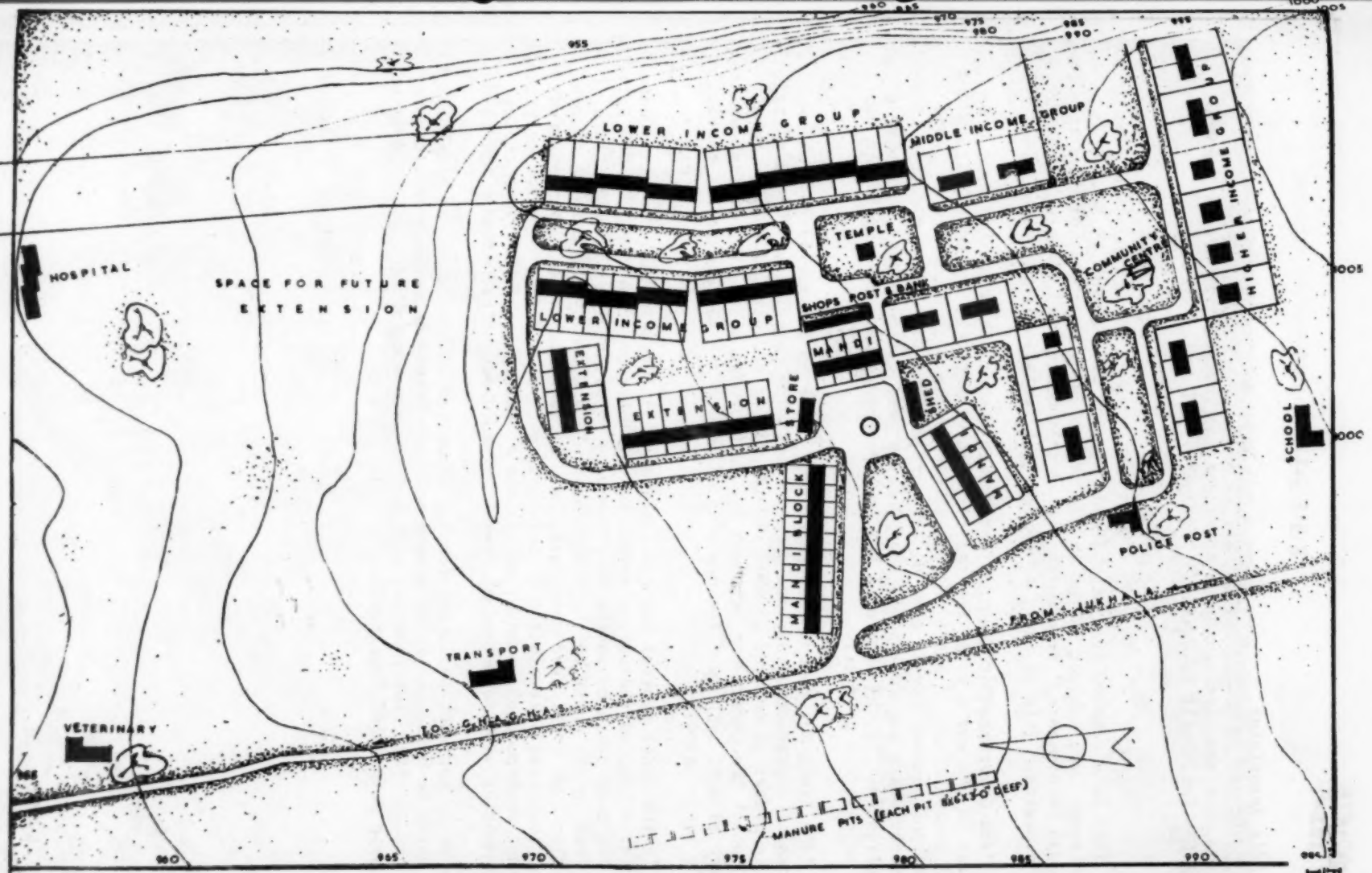
HOUSING ADVISER.

MINISTRY OF WORKS, HOUSING SUPPLY
GOVT. OF INDIA. NEWDELHI.

HIB-GA 36
Page 104



HIB-GA 36
Page 105



TYPICAL LAY-OUT PLAN OF A NUCLEUS FOR A MANDI CENTRE.

DRG. NO. 5

(FOR HILLY AREA)

SCALE IN FEET

HIB-GA 36
Page 106

D.E.F.G.I.O.U

Doxiadis Associates
HOUSING AND COMMUNITY DEVELOPMENT IN IRAQ
from text and pictures by Vasso Mingos in Pictures From Greece (reprint)
"A New East Built by Greeks." 7 pages.
711.4 (56)

1. This is a summary of a significant portion of the work by Doxiadis Associates. The subject is put in the framework of Ekistics, or "the science of Human Settlements," from which all of the housing and planning work of the firm proceeds. This is also, of course, the basis for this journal EKISTICS.

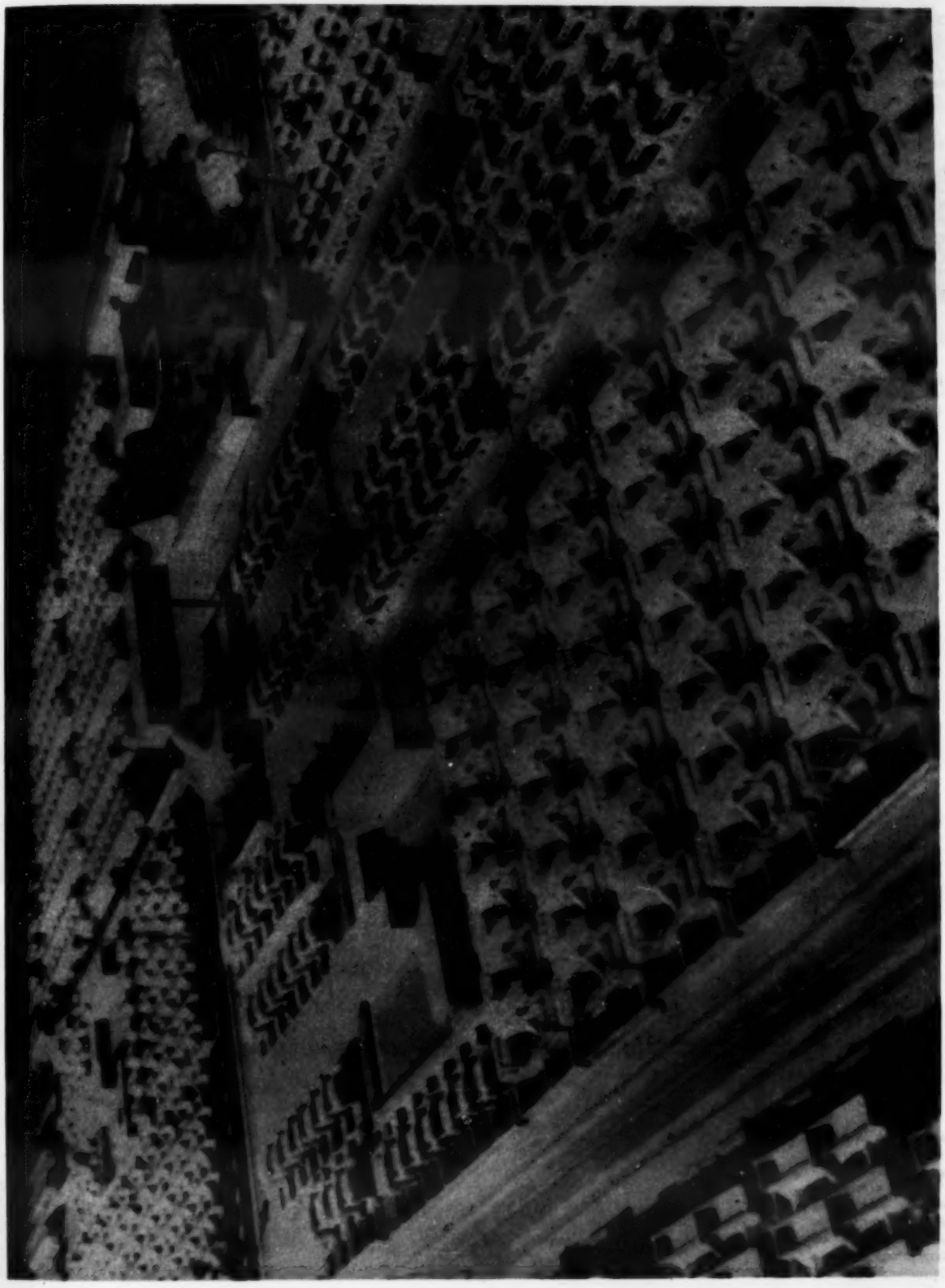
2. "The Government of Iraq has undertaken one of the most important programmes in the world today for the creation of entirely new model cities and model communities. A basic characteristic of the public squares in these cities and communities is that no cars are allowed to enter but remain in the perimeter where the dwellings, shopping centres, coffee houses, mosques, etc., are situated. In the centre of the squares themselves the inhabitants are able to come and go freely.

3. "The Iraqi Government is also experimenting on a large scale with new methods of construction and new types of building materials. The main part of this effort is centred on what is virtually a new city of 100,000 inhabitants which the Government, through its Development Board, is building on the western side of Baghdad. The new city will be ready to receive its inhabitants in two years' time."

4. In the model quarter for civil servants included in this project, Doxiadis Associates limited themselves mainly to the function of designers. The building work was undertaken by contractors who were supplied with the basic plans, but were free to use their own building materials and employ the methods of construction they considered most suitable. Fifteen contractors from eight different countries participated in this constructon, and they competed to produce the best construction methods, making use of materials of their own choice. In commenting on this method of consultation, Constantine Doxiadis has said:

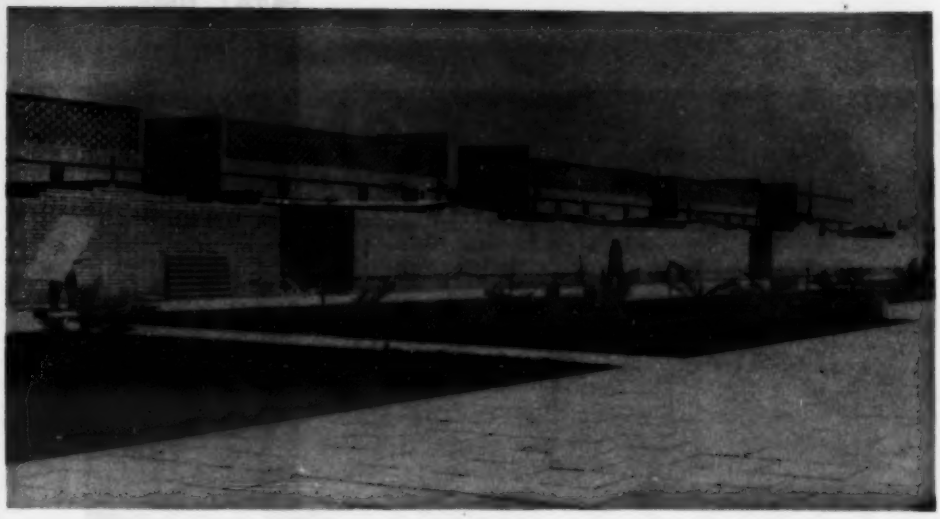
> "We do not seek to impose foreign-conceived solutions on the countries in which we work; we try to find a solution based on the best each country has to offer, but combined with modern technical achievements and up-to-date methods of construction."

Doxiadis Associates. Baghdad.

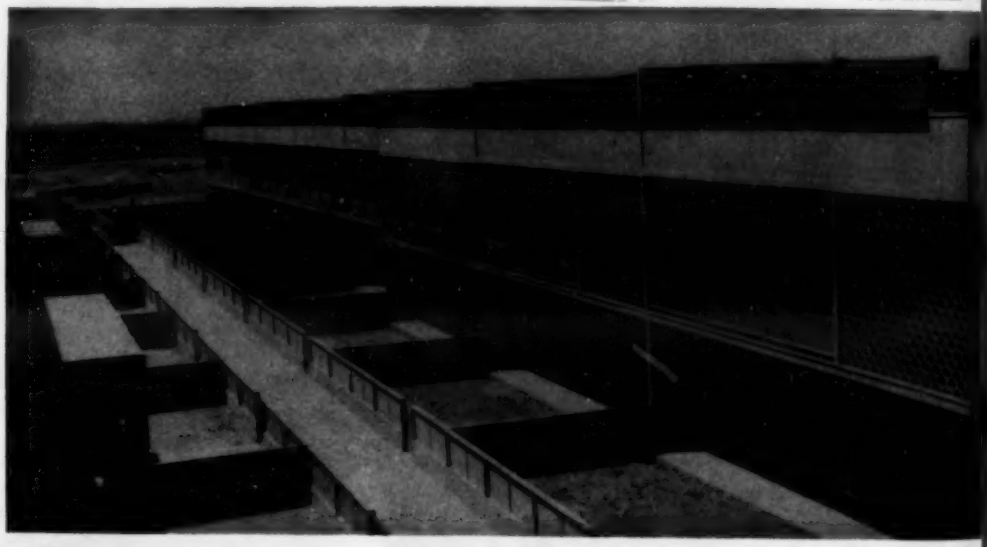


Doxiadis Associates.

Baghdad.



A main pedestrian way in Western Baghdad Development. The whole scheme comprises 7,500 houses for various income groups.



A NEW public square in Baghdad—part of what is virtually a new city of 100,000 inhabitants which is being erected by the Government of Iraq on the western side of the town. Plans were drawn up in Athens by Doxiadis Associates, who are acting as Consulting Engineers.

D.G.H.I.O.

Von Gruenbaum, G.E.
THE MUSLIM TOWN
Landscape, Spring 1958, pp. 1-4 (Illus.)
711.424 (53/55/56)

1. This article derives from the author's earlier work ISLAM: Essays on the Nature of a Cultural Tradition. G.E. von Gruenbaum is Director of the Near Eastern Center, University of California, Los Angeles.

2. To the Muslim, a town was a settlement in which his religious duties could be completely fulfilled. Canon Law permits performance of the obligatory communal prayer in the open air, and it does not prescribe a minimum of participants. The community prayer of the Friday noon service, however, may be held only in a fixed settlement with a permanent population, of whom at least forty legally responsible men must be present to make the ceremony valid. In the later period the consensus of the learned seems to have insisted that the Friday prayer should take place in a fully walled mosque.

3. These stipulations clearly exclude the nomad from full participation in the ritual. And this is one of the traits that characterize Islam as a religion of townspeople--in the sense that it tends to favor the settler over the nomad. The prophet Muhammad himself was born into the most highly developed urban community of contemporary Arabia, and his appeal was largely due to its appropriateness to the urban situation. Islam has several characteristics which brought the townsman into his own: legislative norms tailored to fit the needs of a commercial community, disparagement of the Bedouin and corresponding high valuation of the transition to the sedentary life, and especially an (ideal) substitution of religious affiliation for kinship as the rationale of social organization. The command of the force which established the Muslim empire lay overwhelmingly with the urban circles of Medina and Mecca.

Market and Mosque

4. The full-fledged Muslim town has two focal points. The "jami" or Friday mosque and the "suq" or market. The "jami" is the spiritual center and is generally placed appropriately along the main thoroughfare or, where the plan of the town permits, at the rectangular crossing of two main thoroughfares which is marked by a spread out square. "The analogy with cardo, decumanus and and forum of the Roman town is obvious."* Next to the "jami" is found the principal government building, the palace of the ruler or the official residence of his deputy. And the "jami" is the political as well as the religious center of the settlement, for it is here that the inhabitants gather to hear proclamations. The mosque is also the intellectual center of the town, where theologians, law experts, teachers and students congregate.

5. It is observed that markets generally tend to have the same shape in all parts of the Muslim world. For one thing producers or retailers of the same kind of goods will always occupy adjacent stalls; each trade is likely to have one market lane to itself. And more importantly, the order in which the several trades follow one another in the layout of the market is apt to be

*See footnote at end

about the same in all Islamic lands. Near the mosque are found the suppliers of the sanctuary, the "suq" of the candle merchants, dealers in incense, etc. Near the mosque as an intellectual centre are found bookbinders and other leather crafts. Adjoining this group of markets are the halls of the dealers in textiles, called the "qaisariyya" and the only section of the suqs which is regularly roofed and which can be locked to store and exchange other precious materials as well as fabrics. "It is certain that the "qaisariyya" was developed from the Byzantine basilica, probably from Antioch. It is very important to the town as a whole. Beyond the "qaisaryiyya" are the carpenters, locksmiths and the producers of copper materials. Further away from the center of the town will be found the saddle-makers, and then the vendors of produce brought in from the country, together with the basket makers, sellers of spun wool etc."

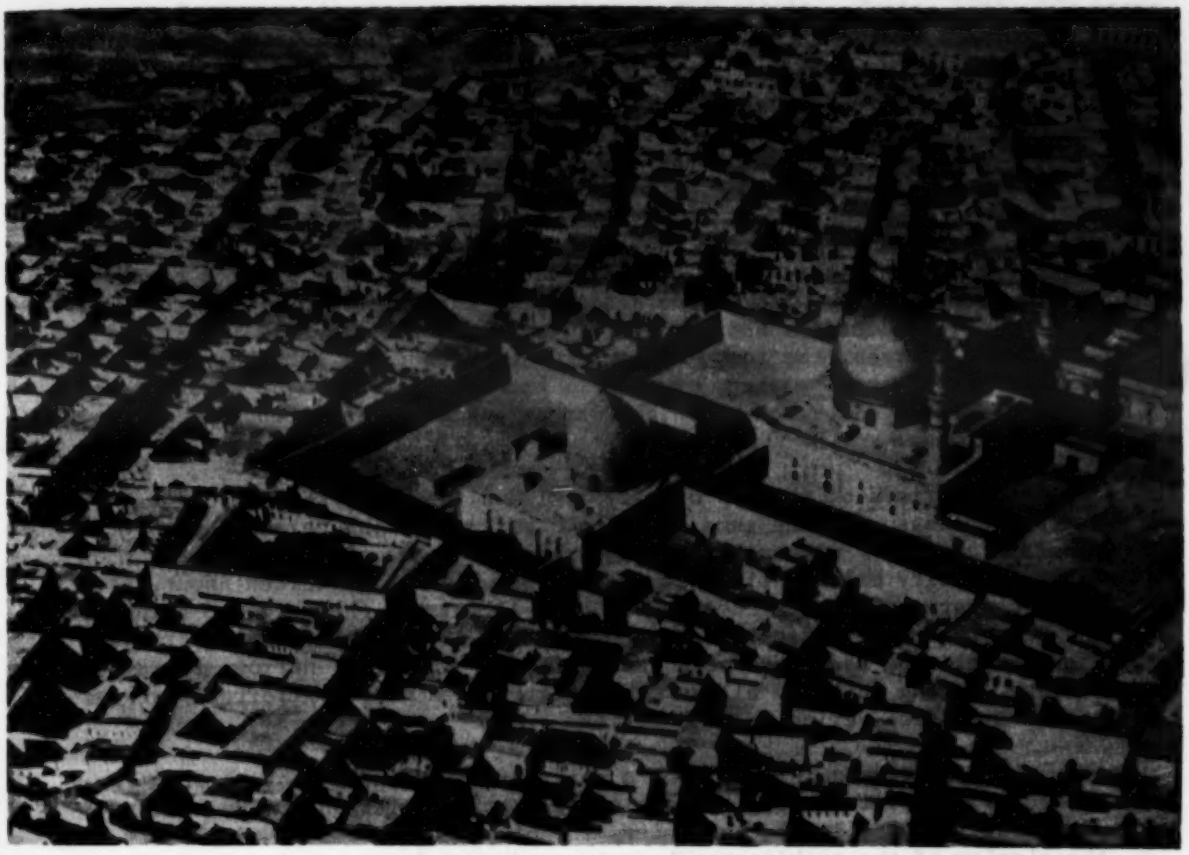
6. On the very edge of the town will be industries which require space and have some nuisance character: dyers, tanners and potters. Fairs are held before the city gates. In towns to which the caravan trade is important an area will be kept open in which the caravans may be assembled and unloaded. In other towns the boatmen have their section just outside the gates. In all cases on the glacis beyond the walls singers and storytellers gather groups of listeners about them. The religious as well as the economic life extends beyond the gates where the cemeteries are located, and where often saintly men have hermitages which sometimes grow to convent size with disciples and "faqirs."

Absence of Unity

7. In its business district (and in a sense in its "official" section--mosque and government buildings--as well) the unity of the town is apparent. The arrangement of the residential districts reflects the separatist tendencies at work within it. For the unity of the Muslim town is functional not civic.

8. In their newly founded cities the Arabs would settle by tribes, each tribal quarter to be complete with its own mosque, bath, and as a rule, its own market. One description of Antioch refers to it as 'a collection of towns' each of which is totally separate in terms of customs, laws, and psychological identification. The description indicates an 'extraordinary compartmentalization of the city in forty-five small sections, forming so many autonomous cells, so many cities within the city,' each with its own governmental, religious and cultural structure. Sometimes the individual quarters are walled and their gates locked during the night to guard against the insecurity from perenial interquarter animosities.

9. There is hardly any open space within the quarters to relieve the narrowness of the streets and byways. The Muslim house is oriented away from the street, receiving its light from an inner court; and the complex of its constituent buildings is so arranged as to secure a maximum of privacy. An outgrowth of social mores demanding as complete a withdrawal from the public as possible of the family's women, this desire for privacy inspires the insistence that windows and roofs be constructed so as to prevent anyone's intruding unseen into the intimacy of his neighbors' lives. It is for the same reason that house doors on opposite sides of a street may not face each other.



The Muslim city as a collection of communities: Smyrna (Izmir) in 1880, showing Turkish, Jewish, Armenian, Greek and European quarters.

Von Gruenbaum, G.E. The Muslim town --3

10. The loyalty of the townsman belongs to his family group and then to the ethnic or denominational unit which shares his quarter. Tolerated minorities occupy their own sections of the town; and some, such as the Jews, live near the government buildings for better protection.

11. In Iran and in Turkestan the original layout of the city was somewhat different. Pre-Islamic towns of these countries are made up of a citadel and the town proper, with the market outside the citadel walls in the "berun" or town which sometimes had a wall of its own. With the Arab industrial and commercial classes, the focus of life turned toward the suburbs. And within the town a universal pattern of markets extending along major streets, both north-south and east-west, with the market place and the principal mosque at the crossroads.

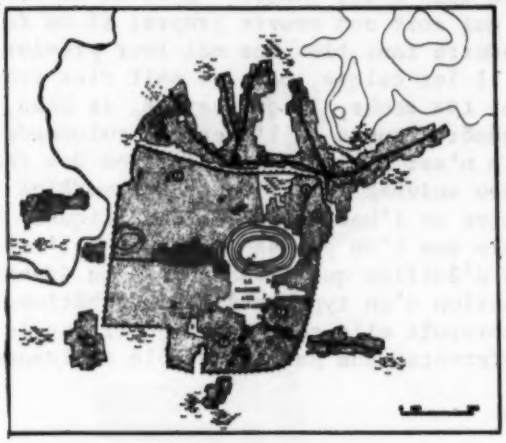
12. A comparison of the map of a typical Muslim town with that of its Hellenistic predecessor in the same location shows a striking persistence of the general features. Although the mosque has taken the place of the forum or agora, the city walls still delimit an area which is organized about the ancient system of co-ordinates. But the Hellenistic checkerboard structure has been rendered ineffective by the build-up of the individual quarters. The few major or radial streets had grafted to them many narrow, tortuous streets, ending in blind alleys. The destruction of the gridiron plan came at the Byzantine period in some cities.

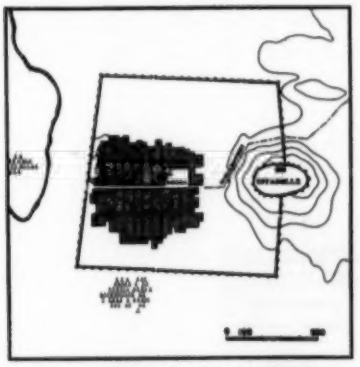
13. Under Muslim domination came a sharpening in the expression of mores backed by a definite religious outlook on social relations. The ancient political interest in the community, the classical ideals of city unity and the clarity of the architectural design and the administrative function were replaced by a dominant religious interest, by ideals of quarter or group loyalty, by the desire to shield the family group from dispersal and contamination, and by the concept of the government as an outside agency with which one is no longer identified but which one rather wishes to keep at arm's length from the spheres of ones personal and familiar life.

14. The Islamic town did not represent a uniform type of civilized life as had the Greek or Roman town. Hellenism spread through the Near East by immitation of a classical ideal; but, while there were cases of immitation, neither Mecca nor Baghdad could be assigned the place of an archetype in a comparable sense. But the Muslim has for generations identified urban life and civilized life. "A city as the seat of power, urbanization as the inevitable concomitant of the rise to power of a nomad and barbarous nation or group, and the succumbing to the twin temptations of rulership and urban culture have been convincingly analysed by Ibn Haldum (d. 1406) on the very eve of the great decline of the Muslim world, not the least sympton of which was the shrinking of some of those very towns that had been the greatest pride of Muslim civilization."

*EDITORS' NOTE: A somewhat more definite statement of the historical development of Near Eastern cities might be possible for some of the above points. Indeed Jean Sauvaget in his description of the evolution of Allepo, Syria, concludes: **"Mais le point à enregistrer, comme essentiel c'est que ces organes fondamentaux de la vie urbaine conservent - ici comme dans toutes les autres

Sauvaget, Jean. Alep - Essai sur le développement d'une grande ville Syrienne, des origines au milieu du XIX siècle. Paris, 1941. 302 pages.

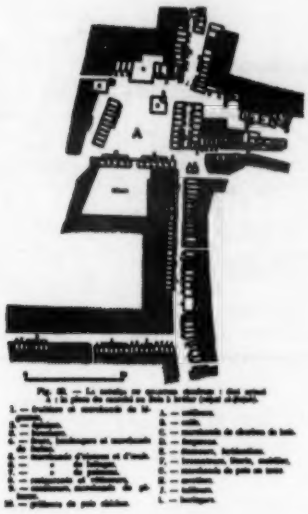




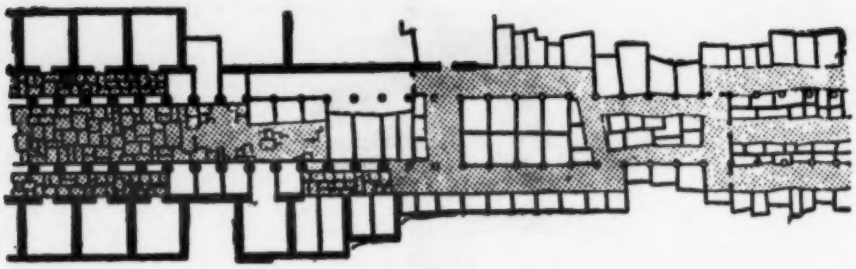
villes syriennes et jusqu'à la date à laquelle s'achève notre étude - la forme même que l'Antiquité leur avait donnée. L'Islam ne leur substitue aucune création originale qui soit son oeuvre propre; il ne fait que les rhabiller à sa guise ou reproduire tant bien que mal leur premier aspect; il leur donne un nouveau faciès, il les calque, mais ne sait rien trouver qu'il puisse mettre à leur place. Les souks, la quaisariya, le khan, la Halle aux fruits, ne sont que des dégénérescences de l'avenue à colonnades, de la basilique, de l'agora. Le bain n'est qu'une schématisation des thermes. Les ouvrages de distribution d'eau suivent pareillement des modèles antiques. La maison, nous le savons, dérive de l'habitation hellénistique. Enfin la seule innovation architecturale que l'on puisse attribuer à l'Islam, la formule spécifiquement islamique d'édifice qu'il inaugure: La Grande-Mosquée, n'est elle-même que la reproduction d'un type antérieur de bâtiment ayant une fonction identique; et par surcroît elle continue à jouer sur le même site, quoique sous des dehors differents, une partie du rôle anciennement dévolu à l'agora et à ses annexes."

**Sauvaget, Jean. Alep - Essai sur le développement d'une grande ville Syrienne, des origines au milieu du XIX siècle. Paris 1941. Conclusion p. 247.

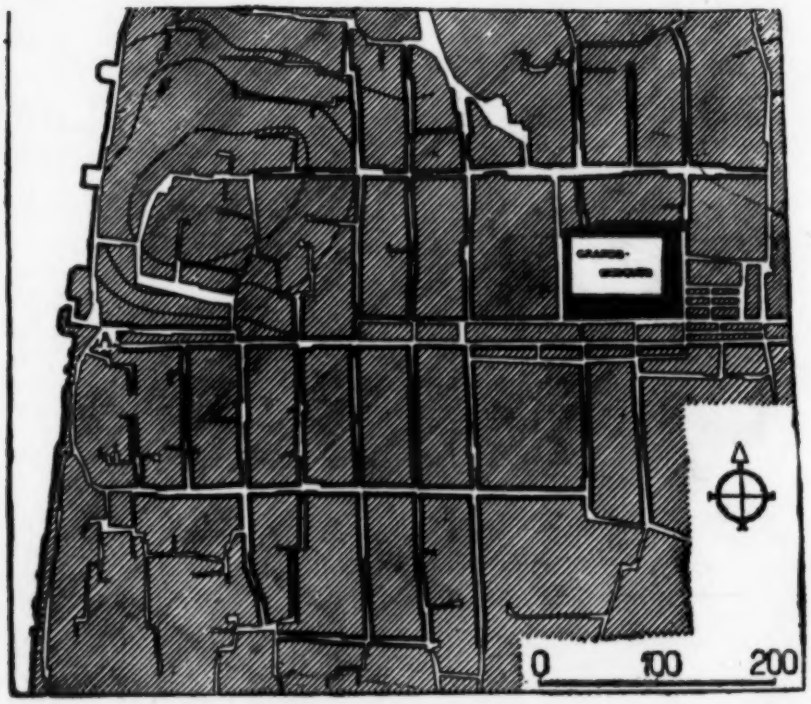
Sauvaget, Jean. Alep - Eddai sur le développement d'une grande ville Syrienne, des origines au milieu du XIX siècle. Paris, 1941. 302 pages.



Sauvaget, Jean. Alep.



TRANSFORMATION EN SOUK D'UNE AVENUE ANTIQUE :
schéma montrant le processus de dégradation de l'ordonnance antique et la localisation topographique des souks médiévaux correspondants.



SURVIVANCE DU PLAN HELLÉNISTIQUE DANS LA VILLE ACTUELLE.
A l'entablement corinthien.

D.N.O.

Kayanan, Antonio C.
PLANNING FOR DEVELOPING COUNTRIES
Columbia Planners Newsletter, Columbia Univ., No. 10, May 1958.
(Abstract of a talk)
711.12 (100)

1. These planning principles were outlined in reporting on the development process in Iraq, India, and Puerto Rico. The emphasis of the approach is on a balanced development through the proper interrelation of social, economic, physical and administrative considerations. Professor Kayanan, from the Philippine Islands, is at present a consultant to the Housing, Building and Planning Branch of the United Nations Bureau of Social Affairs.

2. "Present economically developed countries are the product of three revolutions:

a. The Industrial Revolution, which concentrated workers around mass production methods of the machine;

b. The Commercial Revolution, which collected employees to operate extensive trade and business enterprises;

c. The Transportation and Communication Revolution, which made the first two revolutions easier to accomplish.

The accompanying urban growth in these developed areas, took place relatively gradually.

3. Urban growth in developing countries, on the other hand, is being pressured by increased industrialization which is being introduced in order to provide a more equitable distribution of wealth. Even before the introduction of the machine, these urban areas were being filled with rural farmers who had left their drab tenant possessions to work for rich and influential city folks.

4. Because of the differences in time and place, in culture and history, in population size and distribution, in social and political structure, and many other matters, there must be a differentiation in the kinds of planning used for presently developed countries and countries now developing economically.

5. In general, planning is the art and science of applying forethought to the development of areas and resources for the benefit of all persons, by ensuring that the right amount of the right thing is in the right place at the right time. At present we are still looking for what is right. Planning should be based on what the "patient" <u>needs</u>, and not necessarily upon what he <u>says</u> he wants. Planning is a continuous process of trying to find out the answers to these questions: What do we have? What do we need" How much do we want it? How can we get it? And once we get it, will we want something else?

6. Planning in the United States is concerned only with volumes: the number of houses built, the miles of road constructed. The "patient" is being supplied with what he wants. This type of planning can be analogous to a yacht which, if it drifts off course and hits a rock, will sink. "Raft" planning

is more successful: a raft may look less smart and move less swiftly; it may even tip slightly and get someone's feet wet, but it always stays afloat.

7. Planning for developing countries should be for the attainment of the best possible under the existing conditions, rather that the ideal. Emphasis should be laid on intelligent and militant participation in the planning process, rather than on undertaking projects. To accomplish this, planning education is needed at all levels, not only for planners, but also for officials and citizens. If the planning process can be accepted as a necessary function of government it can make actual planning easier.

8. Democratic planning is advisable, but usually this is both a slow and painful process. In the developing countries planning is most effective when inaugurated by a strong centralized and coordinated leadership, subject, however, to accepted democratic controls. When there is an assurance of intelligent public participation, the planning function may become decentralized, although central control may be retained for purposes of effective integration.

9. As a final word, planning can only accomplish certain things which fall within the sphere of its operations. In planning for developing countries, some attention should be directed to what planning cannot and should not do.

C.D.H.M.O.

United Nations, Economic and Social Council, Economic Commission for Asia and the Far East.
REPORT OF THE COMMITTEE FOR CO-ORDINATION OF INVESTIGATIONS OF THE LOWER MEKONG BASIN
E/CH.11/475, 2 February 1958. 9 pages.
711.2 (59)

1. This is a report of the committee, including actions taken after submission of the Mekong Field Survey (reported in March Ekistics, HIB-GA 30, p. 149). Extracts below are from the Second Session of the Committee, which was held in mid-February, 1958. Commenting on the Field Survey:

2. ".....The committee accepted the conclusions reached and recommendations made in the report. The committee further considered that the five-year programme of investigations and planning was exceedingly well thought out and constituted an eminently practical approach towards achieving the speedy and orderly development of the lower Mekong basis.

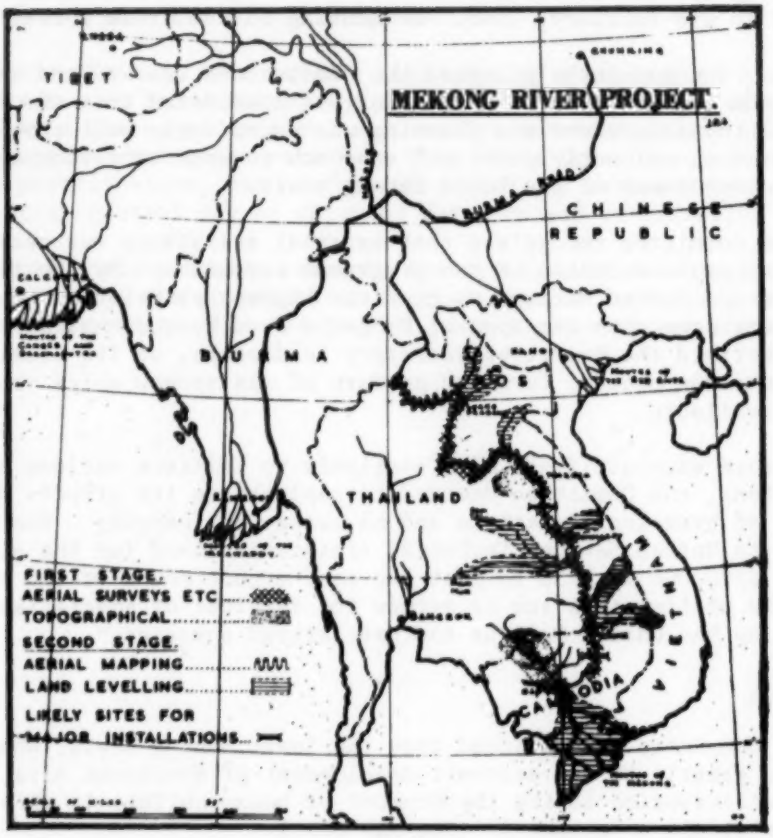
3. "The committee recognized that external assistance was necessary for the successful implementation of the programme recommended by the Mission. It requested the United Nations to give the highest priority to the realization of the programme when the Special Projects Fund become available. The committee also authorized the Executive Secretary to discuss, on its behalf, with friendly governments the extent, form and pattern of assistance which could possibly be made available.

4. "Before adequate funds were available to initiate various surveys and investigations, the Committee decided to concentrate its efforts on the establishment of hydrologic stations and on survey and mapping. The committee was grateful to United Nations Technical Assistance Board for the allocation of a sum of $200,000 in 1958 to meet the more urgent needs of the programme and decided to utilize this sum to secure the services of specialists to be provided by the United Nations and specialized agencies."

Conclusion

5. The committee is convinced that the lower Mekong basin, when developed, would add greatly to the economic development of southeast Asia, and make a greater contribution to the improvement of human welfare in this area than any other single undertaking. (See map over)

The Builder. Mekong river project.
June 6, 1958, p. 1047.



A.D.H.N.O.

United Nations, Economic and Social Council.
WATER RESOURCES IN ECONOMIC DEVELOPMENT
Twenty-fifth session, Item 5(b), E/SR.1015, 1 May 1958; E/3114, 1 May 1958.
Also Press Release ECOSOC/1620, 25 April 1958.
711.12 (100)

1. This is a summary of the discussion and decisions of the Economic Committee of the Economic and Social Council on water resources as an element in economic development. Four major studies were before the council:

a. "Integrated River Basin Development" (Doc. E/3066) prepared by a panel of experts and recommending a number of concrete steps at both the national and international levels to achieve balanced and sound programs for development of urgently needed water resources;

b. "Water for Industrial Uses" (Doc. E/3058) which submits a number of suggestions for meeting the problems arising from the rapidly growing demand for water by industry;

c. "A preliminary report into existing hydrological services (Doc. E/3070) and;

d. "A progress report on international cooperation with respect to water resource development (Doc. E/3071).

2. All of these studies were generally well received by the delegates. The discussion centered around the possible need to create a separate administrative group for water resources, the integration of water resources work with the World Meteorological Organization and with the World Health Organization, and the situation and activity in various countries. The following delegations were active in the discussion: Netherlands, Pakistan, Mexico, China, Laos, Yugoslavia, France, USSR, Canada, UK, Indonesia, and the USA.

3. In the draft resolution, all four publications were commended. Other points in resolution were listed under four headings, each having relation to one of the publications (in same sequence as above):

a. (Doc. E/3066) - Calls the Report and its recommendations to the attention of Member Governments and the appropriate specialized agencies; and notes with interest the efforts being made to formulate legal principles applicable to users of international rivers, particularly those referred to in chapter 4 of the report.

b. (Doc. E/3058) - Calls special attention to the importance of water abatement, particularly in industrialized countries and of preventing water pollution in countries in the early stages of industrialization and in this connexion recommends that the experience of the Economic Commission for Europe and co-operating specialized agencies be taken into account.

c. (Doc. E/3070) - Invites the World Meteorological Organization to consider the report and take appropriate action thereon, bearing in mind the discussion at the twenty-fifth session of the Economic and Social Council and the necessity of avoiding duplication with the

work of the United Nations and specialized agencies.

d. (Doc. E/3071) - Requests the Secretary-General to take appropriate measures for the establishment within the Secretariat, of a centre to promote co-ordinated efforts for the development of water resources and, for that purpose, to facilitate co-ordination in the collection of information on such resources and their uses.

4. "Further requests the Secretary-General to give proper consideration to applications by Governments for assistance in the development of river basins, including the joint development of international rivers;

5. "Endorses the recommendation of the Panel of Experts on Integrated River Basin Development relating to water resources that the United Nations and specialized agencies pay special attention to stimulating and facilitating the international flow of information including that development by non-governmental organization, in consultative status with the United Nations;

6. "Requests the Secretary-General and the specialized agencies to keep the inter-related problems of water resources under continuous review, and to this end to develop a programme of studies relating to such problems, giving priority for concerted action to the questions enumerated in Chapter IV of Document E/3071, and to integrate river basin development; and to report to the twenty-ninth session of the Council on progress achieved at the national and international level in regard to the above items including appropriate recommendations concerning further action which might be taken by the Council and the specialized agencies.

7. "Invites Members of the United Nations to pay appropriate attention to water resources questions in their country programmes, and for regional or inter-regional projects, both in connexion with the United Nations Expanded Technical Assistance Programme and in programmes developed through other multi-lateral or through bilateral arrangements.

CONSTRUCTION

C.E.F.N.S.T.

Martin, Bruce
BRICKS AND THE MODULE
Prefabrication, May 1958, pp. 318-319. Illustrations.
693.2 (4)

1. This is a report taken from a talk by Mr. Martin on April 24 to the Modular Society, London. Bruce Martin is head of modular productivity studies at the British Standards Institution.

2. The general conditions of an effective modular system resolve themselves into six precise requirements for the size of the module. The following have been implicit in modular theory since the beginning of the E.P.A.* Project:

a. The module should be small enough to give multiples which correspond to all those sizes necessary for the different components on the industrial range and to provide a viable increment between modular sizes in order to minimise alteration of present component sizes to their modular dimensions.

b. The sizes of the module should be as large as possible to achieve the maximum degree of correlation between all modular sizes.

d. For easy application, the module size should be expressed in terms of a whole number and such that it bears a numerically simple relationship with the established system of measure of which it is a part.

e. The size of the module should be selected in agreement, and where possible in allignment, with all other countries operating or considering the adoption of modular coordination.

f. The module size must be selected as the most satisfactory dimension to meet all these conditions taken together; that is to say, though the conditions are equally important, because they tend to modify each other, the module size cannot be chosen as the optimum dimension to meet any one of them without due consideration of the achievement of all the others.

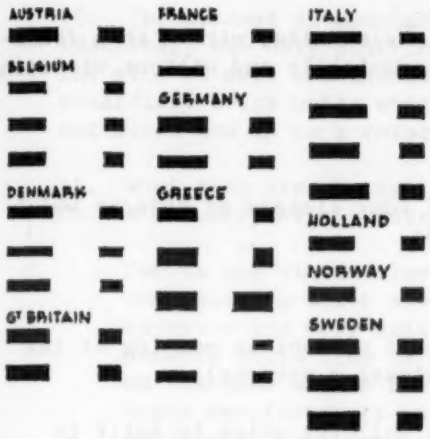
3. The belief that a given brick module (4in. in the United Kingdom) will be prejudicial to the national brick industry essentially comprises two related factors: that the brick will be expensive to alter if it is to become a fully modular unit, and that if it is not so altered it will become uneconomic to use in conjunction with other modular building sizes. This problem has been the central issue of the EPA discussions during the past year.

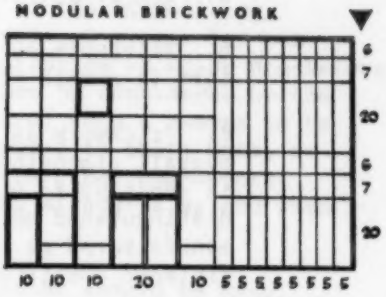
4. In the international context, the particular difficulty has been to try and achieve a range of modular brick sizes which would be economic for the different national brick industries concerned. A look at the variety in brick sizes both within each country and between all countries, however, indicates that such an objective is presently impossible and is only economically feasible on a very long term policy.

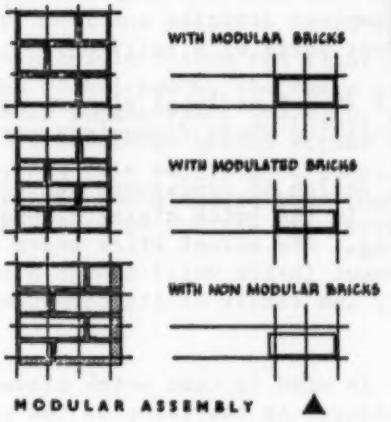
5. For this reason, the problem quickly resolved itself into a consideration of the use of existing brick sizes in relation to the requirements of the modular reference system in design. After much debate it is now thought that

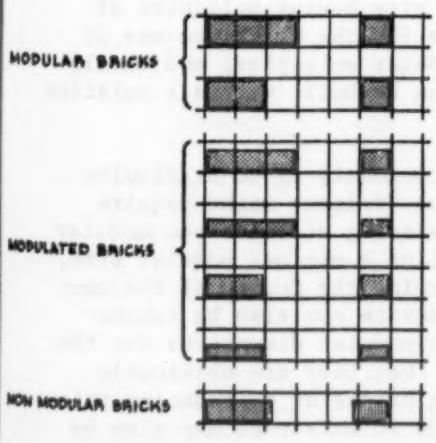
*European Productivity Agency.

Prefabrication... May 1958.



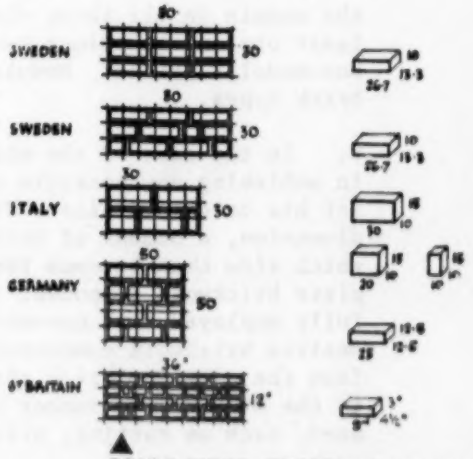






PREFABRICATION, MAY 1958

MODULAR BRICKWORK



Martin, Bruce. Bricks and the Module --2

it should be possible to accommodate the present brick sizes within this framework perfectly satisfactorily; that is to say economically and without vitiating the basic modular principles.

Modular Brickwork

6. By its nature the brick universe consists of four classes of objects which go in ascending order in relation to the building.

a. The simple brick unit as manufactured;

b. Brickwork as defined according to the most elementary meaning of the term (a number of bricks joined together, almost a process);

c. Brickwork as an actual component of the building which is built to overall dimensions chosen by the designer (a composite component that is constructed on the site from a number of brick components and joints, distinguished both from ordinary compound units like windows which are manufactured as complete articles and from functional elements which are finished constituent parts of a building);

d. The brick wall as a functional element (consisting of the brickwork component plus finishing whose dimensions vary from job to job).

7. So far as modular design is concerned, the brickwork component is the only significant object in the brick hierarchy when considered in dimensional relation to the building. The actual brick bears no direct relationship to it and the functional element (brick wall) though a constituent part, is dimensionally speaking merely the result of its component dimensions plus those of the finishings.

8. The point to bear in mind is that brick sizes and the design of the brickwork must both be considered in the light of the principle that of this hierarchy it is only the brickwork component that must fully occupy and not exceed its modular space. Only three possible types of bricks can exist in relation to the modular grid. Modular bricks (with size having multiples of the module in all three directions) modulated bricks (bricks which possess at least one and sometimes two dimensions which are modular multiples) and wholly non-modular bricks. Modular brickwork components can be built with all existing brick types.

9. In the case of the modular bricks, there will obviously be no difficulty in achieving any possible modular dimensions that the designer might require for his brickwork size. With modulated bricks, possessing at least one modular dimension, a number of bricks may be taken as equalling a minimal modular size, which size then becomes the 'brickwork module' governing the design of the complete brickwork component to be constructed. This device can also be successfully employed with non-modular bricks, provided the modular dimensions for the desired brickwork component are carefully chosen so that they are obtainable from the existing brick sizes so as to avoid cutting bricks or to reducing this to the minimum. A number of other techniques already in existence may also be used, such as cutting, stretching of joints, changing of bonds, etc.

Martin, Bruce. Bricks and the Module --3

10. The concept of modular brickwork components filling their own spaces is identical, the only practical difference being that these are constructed on the site to meet the modular dimensions and are made up of a number of similar subsidiary brick units which in themselves may or may not occupy modular volumes but which add up to a total modular dimension.

11. What then are the implications of this reappraisal of modular brickwork on the industry of a country? The case of the United Kingdom is taken in point:

> "While the 4in modular system does not actually necessitate a change in the existing brick sizes, if adopted by the rest of the UK building industry its very existence as the national dimensional system for components would seem to indicate a similar rationalisation of brick dimensions on the same module basis. This, however, could now be considered by the brick manufacturers in their own time when they feel such a course to be necessary, either on grounds of technical improvement to their unit, or for economic reasons, or to bring it into line with other components; which is only the normal way of reforming existing standards as and when the need arises for it.
>
> "On the question of 4in module bricks one final point should be made. In view of the concept of brickwork, the range of possible modular sizes for brick units has been immeasurably increased in that it now becomes possible to manufacture modulated bricks either in place of or as well as the modular units; and this should go a considerable way towards easing any difficulty that has hitherto been thought to be incured in technically achieving bricks to fit the 4in reference grid."

A.E.F.N.S.T.

Wilkenson, C.E.; Striker, Leon; and Traxler, R.N.
CRITERION FOR THE EVALUATION OF ROOF COATING ASPHALTS
ASTM Bulletin (American Society of Testing Materials), No. 230, May 1958, pp. 42-44.
693.78 (100)

1. This presentation of a complex, ten-part criterion for testing the durability of asphalts used in roofing. Following the method described, a clue to the serviceability of roof coating asphalts can be ascertained within one week in the laboratory, and their suitability for roofing manufacture can be established without waiting the long period required for atmospheric weathering results. The authors are engaged in chemical research at the Texaco Port Arthur-Port Neches Research Laboratories in the US, and all have been involved in roofing, road building and other protective asphalt products for between 12 and 30 years.

2. Starting with more than twenty methods of testing roof coating asphalts, the authors found that more than half of the tests failed to help in evaluating the suitability of the asphalt, or were found to be valueless as correlates of atmospheric weathering. Such tests were eliminated. Ten tests were finally selected from the original list, and the chosen tests were of two types:

a. Tests to specify an asphalt having the proper consistency, temperature susceptibility and suitability for the manufacturing of prepared roofing;

b. Tests which were expected to have a direct bearing on the durability of roof coating asphalts. These tests were:

1. Methods of Test for:

Softening Point of Bituminous Materials (Ring and Ball Method) (ASTM D 36-26)*
Penetration of Bituminous Materials (ASTM D 5-52)* at 32 F
Penetration of Bituminous Materials (ASTM D 5-52)* at 115 F, and
Flash and Fire Points by Cleveland Open Cup (ASTM D 92-56)**

2. Methods of Test for:

Specific Gravity of Asphalts and Tar Pitches Sufficiently Solid to be Handled in Fragments (ASTM D 5-52)*
Penetration of Bituminous Materials (at 77 F) (ASTM D 5-52)*
Insoluble in n-Pentane, per cent (AASHO T 46-35)***

3. Tentative Methods of Test for:

Contact Compatibility Between Asphaltic Materials (Oliensis Test) (ASTM D 1370-55 T)* and methods for
Cyclics, per cent, and
Oxidation-Hardening Index

* 1955 Book of ASTM Standards, Part 3
** 1956 Supplement to Book of ASTM Standards, Part 3 and 5
*** Method of Test, American Society of State Highway Officials.

Wilkenson, Striker and Traxler. Evaluation of roof coating asphalts --2

3. Fifteen samples of asphalts from different sources (including airblown as well as mixed and blown asphalts), were subjected to the above tests. The atmospheric weathering data, used for correlation, were obtained under Gulf Coast conditions in the following manner:

> "A film of asphalt 0.925 in. thick was applied to an aluminum panel which was exposed facing south at an angle of 30 deg. The film of asphalt was considered to have failed when a crack in the metal panel was visible. Duplicate panels were exposed for each asphalt and average values to the nearest five weeks are reported. Obviously, the results are reproducible within only a few week and the weathering data...should not be taken as exact or absolute values."

Description of the Tests

4. The results of the tests enabled the researchers to determine tolerance limits for roofing asphalt expressed in the data of each test. The softening point test is necessary for manufacturing control and in selecting roof coating asphalts having the desired temperature-susceptibility characteristics; The penetration at 32 F test is important in the elimination of brittle products which whould shatter with shock at low temperatures; The penetration at 115 F guards against sloppage under high temperatures on roof decks; The Flash Point test, because of the high temperatures during manufacture, is necessary to avoid fire hazard. None of the above tests related directly to durability. For those tests directly related with durability of roof coating asphalts, tolerance limits were also established. Three of these may be explained further. The Compatability test serves to isolate and eliminate incompatible combinations of saturant and coating asphalts, which result in blisters and leakage. The Cyclics, Per Cent deals with the n-butanol-soluble fraction of an asphalt that is also soluble in acetone, of which an excess is known to relate to poor durability. The Oxidation-Hardening Index combines an "oxidation rating" (the oxygen consumption of an asphalt over a 72 hr. period in unit psi per hr.) divided by a "hardening rating" (penetration before and after oxydation plotted on a log scale against pressure drop, and the pressure drop for 10 penetration obtained by extrapolation). These two factors are known to clearly related to atmospheric weather deterioration of roof coating asphalts.

The limits for each of these tests is as follows:

Softening Point	210 to 230
Penetration at 32 F, 200 g, 60 sec.	10 minimum
Penetration at 115F, 50 g, 5 sec.	25 to 40
Flash point	500 minimum
Specific gravity at 77 F	0.990 to 1.040
Penetration at 77 F, 100 g, 5 sec.	18 to 25
Insoluble in n-pentano, per cent	40 maximum
Compatibility	Obligatory
Cyclics, per cent	12 maximum
Oxidation-Hardening Index	10 maximum

5. This criterion was felt to be 80% effective, since in 12 of the 15 test asphalts, durability was predicted very generally by rating in the tests.

GENERAL

D.I.N.

Gibbs, Jack P. and Martin, Walter T.
URBANIZATION AND NATURAL RESOURCES
American Sociological Review, 23:3 (June 1958) pp. 266-277.
312 (100)

1. This paper attempts to outline a theory designed to explain differences between countries with respect to urbanization and "metropolitanization." The first represents the proportion of the population residing in cities, and the second deals with the proportion living in large cities. Gibbs is associated with International Urban Research, University of California, while Martin is with the Department of Sociology of the University of Oregon.

2. This approach intends to concentrate on the social organization for sustenance, for obtaining "objects of consumption" (material things, raw or processed, that are consumed by a population). This area has been ignored by sociology because economics and geography have partially dealt with it. And ecology (which once showed so much promise in approach to man's organized efforts in relation to his natural environment) has failed by concentrating on micro-ecology and sheer spatial patternings. The theory here presented treats "organizational" as well as "spatial" ecology.

Human Ecology and Urbanization

3. Urbanization comes into the scope of human ecology because cities represent one way in which populations organize to obtain a greater quantity and variety of objects for consumption. (Such organization need not be planned.) Only when cities are regarded as organizations for sustenance can urbanization differences between countries be explained and predicted. Given a land area with a dispersion of natural resources, there are two alternatives (in a polar sense) for a population in its attempt to exploit natural resources and concert them into objects of consumption. First, all areas can be linked with all others possessing needed resources. Second, all resource areas can be linked to a center through the creation of a radial system of transportation lines.

4. If we accept the conception that cities function primarily as centers of control of production and processing raw materials gained through the exploitation of natural resources, there are certain consequences not yet fully realized in ecological theory. (Zipf, Lösch, and Isard are cited.) The size of the central city will stem partly from the dependence of the resource areas on it for items other than the specialty. (If all objects of consumption were equally available at all points in the country the development of the city would no longer be necessary.) A decrease in the city population could also be brought about by a drop in consumption in one or more of the resource areas, due to exhaustion of resources or other factors. This leads to a theoretical proposition.

5. THEORETICAL PROPOSITION: The degree of urbanization in a country varies directly with the extent of the dispersion of its objects of consumption. This could be tested by determining the distance each object of consumption has to be carried from its point of origin as a raw material to its point of acceptance by a consumer. The average distance that all consumption items were carried then would be a measure of the extent to which the country's consumption objects are dispersed. (the weight of the objects would be a further refinement.)

Gibbs, Jack P. and Martin, Walter T. Urbanization and natural resources --2

6. Data necessary for these precise measures were not available. For operational measurement, a country's objects of consumption can be divided into those originating within the borders of the country and those obtained by international trade or conquest. This provides a distinction between internal dispersion and external dispersion. Data were not available for internal dispersion, but international trade statistics in millions of US dollars in the pre-war year 1938 gave a good indication of external dispersion for most of the nations and colonies of the world.

7. A crude component measure of the external dispersion of a country's objects was obtained by multiplying the number of millions of dollars of imports to the country by the distance from the center of the importing country to the center of the region in which the commodity originated. This was expressed as "million dollar miles" of imports per 10,000 population. (Distances were straight lines, not trade routes.) This measure was called "relative external dispersion or RED."

8. This measure of external dispersion was compared with six measures of urbanization; and rank order correlation coefficients were calculated between RED and each of the urbanization indicators. The countries finally compared were New Zealand, Australia, Great Britian, Sweden, Argentina, Greece, Colombia, Brazil, Guatemala, Poland, Mexico and India. (In order of rank for million dollar miles of imports.) The indices of urbanization were the percentage of national population living in cities of 5,000 and over; 10,000 and over; 25,000 and over; 100,000 and over, and in the nation's largest city, as well as an index worked out by Kingsley Davis which averages the percentages of the first four categories. Colleration coefficients of these measures with the measure of external dispersal of national consumption objects were in all cases significant.

9. The finding that urbanization is connected to foreign trade, the authors admit, is not new; and other studies have shown the relationship. (No citations!)* It is claimed, however, that the theory used here provides a rationale for explaining the connection. It is also held that one cannot compare the performance of the measure used with sheer per capita volume of foreign trade (as competitive correlates of urbanization) until a refined measure of dispersion of objects of consumption can be used. (Presumably data for internal dispersion).*

10. A second proposition held that the relationship between external dispersion of consumption objects and urbanization increased with the size of the city under consideration. This proved true when non-cumulative size categories were used. Indeed, only cities over 100,000 showed a really strong correlation with external dispersion of consumption objects.

---

*EDITORS' NOTE: This particular statement seems exceptionally weak. Many methodological shortcuts were taken by the writers in the "test" of their theory. And since they were satisfied to use this measure (which is after all only a multiplication of "sheer per capita foreign trade" by rough distances and by 10,000) they should have been able to give us one simple test of validity: Does this measure improve upon its simpler components? And, with

Gibbs, Jack P. and Martin, Walter T. Urbanization and natural resources --3

modern research techniques and data processing methods, should we turn our backs on one hundred items of precision data for a single crude instrument with no indication of the degree of error we are accepting? Finally, we must painfully speak of scholarship, for, whatever Chrystallar's faults, he has to be recognized in a discussion like this one. And we should like to have seem references to at least one study of those which have already indicated the relation between foreign trade and urbanization.

However, this article is includes in EKISTICS because of its value as a rapprochement which is central to our own interests. It is not, of course, presented as a guide for research nor as a model of scholarship.

B.D.H.R.

International Labour Office
SOME ASPECTS OF INVESTMENT POLICY IN UNDERDEVELOPED COUNTRIES
International Labour Review, LXXVII:5 (May 1958), pp. 389-416.
338.9 (100)

1. This unsigned discussion by the International Labour Review staff deals with the problem of choosing the most suitable way of investing scarce capital resources so as to produce the maximum result in the shortest resonable time. It is a problem faced by the underdeveloped nations as they seek to improve the welfare of their peoples.

2. From the many apparently conflicting arguments put forward recently to support one kind of investment policy or another, the more important are examined. Two main lines of policy are seen to be based on such theoretical criteria:

a. The fairly even spreading of capital throughout the economy designed to have an immediate effect on unemployment and underemployment;

b. The investment of relatively large sums in particular sectors calculated in the long run to touch off a chain reaction of economic growth.

An effort is made to discover how the underlying concepts may be combined in practice to make a realistic foundation for investment policy.

3. In summary, the two major views are stated as follows:

a. The Marginal Productivity Approach

Traditional economic analysis emphasises the importance of the "marginal" principle (which is equally applicable to all kinds of scarce resources)--the principle,--namely that capital (like other resources) should be so allocated between and within different sectors of the economy that the returns from, or net productivity of, the last or marginal unit employed in each of the different uses shall be as nearly as possible equal. If capital is allocated in any other way it would be possible to enlarge the national product by shifting some capital from uses in which its marginal productivity is low to other uses in which its marginal productivity is higher. This principle will imply that, in an underdeveloped economy in which capital is scarce and labour relatively abundant, capital investment in any one direction should be discontinued at a point at which the marginal productivity of capital is higher, and that of labour lower (because the labour will have less capital to help it in its work) than would be appropriate if the country had more capital and less labour. To this extent the principle will favour spreading capital rather widely and thinly through the economy and using labour-intensive rather than capital-intensive methods of production.

b. The Capital-Intensity Investment Approach

Some economists have taken the view that if underdeveloped countries spread their capital widely and thinly and content themselves with labour-intensive techniques, new investment will not make a sufficient impact in any one sector of the economy to bring about any radical transformation in the economic structure of to achieve a "take off into self-sustained growth." In the view of these economists, whom we may call the "capital-intensive investment"

school, it will be more advantageous to concentrate a large proportion of newly available capital on the establishment of industrial nuclei or islands of advanced and relatively capital-intensive technology, even at the cost of leaving the rest of the economy starved of capital, in the hope that these industrial nuclei or "development blocks", consisting of a number of mutually sustaining projects, will constitute strategic growing points from which the impulse toward growth will spread to the rest of the economy. Individual projects within such development blocks may of course be more or less capital-intensive; this approach will, however, call for a certain degree of concentration of capital in particular regions or sectors of the economy.

The Historical Test of the Two Approaches

4. It is historically true that certain industrial complexes and transportation schemes have triggered industrial development in some countries. Even in developed, healthy economies, leading roles of leadership are taken by industries or sectors with especially modern technologies. This would seem to plead for the capital-intensive approach, but for two reasons no such clear picture can be drawn:

a. Rapid growth in certain narrow sectors or even in a single sector of the economy is entirely compatible with a marginal productivity approach to investment policy.

b. There have been many cases in which the establishment of capital-intensive industrial nuclei has failed to trigger off a process of growth in the rest of the economy.

(Examples are oil installations in the Middle East, or mining developments in some Latin American countries.) This latter point may be explained away by noting the foreign concession nature of the investment (with associated export of proceeds, lack of training and responsibility given to indigenous people). Also it can be said that conditions necessary for a take off to sustained growth were not present: rate of investment sufficient to provide the necessary infrastructure of transport, power etc.; and a class of people able and willing to discharge the functions of entrepreneurship on a sufficient scale. But a comparison of development histories of Russia and Japan, shows that the facts of economic development history are capable of different interpretations: that they provide no simple test of the validity of either of the two views.

5. The two approaches are examined in detail, and careful analysis is given the strength and weakness in each. Among other, the work of A.P. Lerner, W.W. Rostow, W.A. Lewis, W.W. Lockwood, A.O. Hirschman, F. Perroux, W. Galenson and H. Liebenstein, H.H. Villard, H. Belshaw, P.T. Bauer and B.S. Yamey, V.V. Bhatt, and O. Eckstein is drawn upon. In discussion the compatability of the two approaches, it is said that:

6. A marginal productivity approach to investment policy is not incompatable with the establishment of industrial nuclei or development blocks, or with rapid growth in certain rather narrow sectors of an economy. Some of the arguments for capital-intensive investments appear to be not arguments for jettisoning the marginal productivity criterion but for interpreting it in a

Int. Labour Office. Some aspects of investment policy in underdeveloped countries -3

particular way. Probably the most important argument for including in a country's investment programme capital-intensive projects that would be rejected if the marginal productivity criterion were applied is the holding that this will make possible a more rapid rate of saving and investment. The inclusion of such projects will involve a certain misallocation of resources from the point of view of maximising the national product in the present, but it may be warranted if the government is convinced:

a. That it is necessary to induce the community to save and invest more than it would wish to do, given the prevailing distribution of income, the prevailing level and structure of taxation etc.,

b. That there are no other and better ways of inducing the increases in savings and investment that are considered necessary.

Application of Investment Criteria

7. It is felt that neither of the two approaches clearly indicates the course of investment specifically enough for application. The substitution of the notion of social marginal productivity for that of private marginal productivity is suggested. But, without further definition, no unequivocal answer to the question of what specific projects should be included in an investment program can be given. This is because the claims of different projects will depend on the interpretation that is given to the concept and the value judgments underlying the interpretation. However, when any interpretation leads to the inclusion of a project X, it may be possible to argue forcibly that consistency demands that some other projects also be included and that still other should be excluded.

8. The literature of the capital intensity school does not give much indication of which specific sectors of the economy should be stressed or of how to identify strategic growing points. Some, it is true, favour the establishment of heavy industries; but this does not consider sufficiently the particular conditions and resources of the individual economy, and there is little historical evidence that heavy industry only is capable of starting a take-off phase. Helshaw suggests a "normal desirable sequence" of industrialisation in Asia: light consumer goods, then medium and finally heavy industry. But there are important exceptions to his "general rule" of evolving availability of capital and labour as well as markets.

9. It seems necessary to go beyond the purely economic investigations into inter-disciplinary studies. Rostow has worked out a series of "propensities" which seem to interplay with "yields" in economic growth; these are:

a. Propensity to develop pure science,
b. Propensity to apply science to the economy,
c. Propensity to accept the possibilities of innovation,
d. Propensity to seek material advance,
e. Propensity to consume,
f. Propensity to have children.

Thus growth may occur, with given propensities, if there is for any reason an increase in yield; or, with given yields, if propensities change, for any reason, in a manner that favours growth; or it may result from some combination of changed yields and changed propensities. It is thought that the concepts may be further refined, but that they are important.

10. The effects of capital-intensity investment upon some of the propensities are known in a very general way. Such a policy has a greater impact upon a small number of people than does a thin spreading of investment. But which of these results is more to be preferred in an underdeveloped country? This question too must be answered when choosing one type of investment policy over the other.

A.D.M.R.

United Nations, Dept. of Public Information
ECONOMIC AND SOCIAL COUNCIL DISCUSSIONS ON INDUSTRIALIZATION
Press Releases: ECOSOC/1619, 1620 and 1623; 25 & 28 April 1958, and
United Nations, Economic and Social Council
ECONOMIC DEVELOPMENT OF UNDER-DEVELOPED COUNTRIES: INDUSTRIALIZATION
A/AC.6/L.206/Add.1 (30 April 1958), E/3112 (30 April 1958), E/RES/674 (XXV) (5 May 1958). All Twenty-fifth session, Item 5(a).
338.6 (100)

1. This is a summary of the salient points arising in discussion and in the decisions of the Economic and Social Council regarding industrialization as an element in the development of under-developed countries. Preliminary debate and discussion took place in the meetings of the Economic Committee, under the Chairmanship of Costa P. Caranicas of Greece.

2. Cyro de Freitas-Valle, of Brazil, stated that the possibility of rapid economic growth in a "closed" economy had been demonstrated by the Soviet Union. But he also felt that the sacrifices imposed by such a type of isolated effort were not fully grasped. Stressing that economic development is tied to the growth of trade, he held that built into the very essence of present trade was a mechanism which stifled the trade of the less developed with the more developed countries. The Brazilian representative was especially worried about the formation of the European Common Market, which might subject more than one-third of Latin American exports to protective barriers. More generally, the creation of great economic blocks, including also the USA, the British Commonwealth and the centrally planned Soviet sphere, was noted; and the need for finding ways and means of expanding the international markets of less developed countries was voiced. The problem of capital intensity, it was felt, now needed to be investigated in concrete cases as to results obtained.

3. The representative of the USSR, G.P. Arkadev, stressed the imbalance between the developed and the under-developed countries. He indicated the technological advances which made it possible for the People's Republic of China to greatly accelerate its development. The difficulties of underdeveloped countries in importing heavy machinery and in training experts were brought out, and the growing part that Russia has come to play was emphasized. The necessity of tight control of a developing economy was justified in the case of Russia, he held. Mr. Arkadev said that the UN should now move from studies of industrialization to the stage of practical help--in which special efforts should be made to disseminate among underdeveloped countries the successful experiences of economically more advanced nations like the USSR and the People's Republic of China, where industrialization plans had been carried out. The Russian delegate felt that some other delegations were "dragging their feet" on the matter of creating a special UN body for the promotion of industrialization. A consultative committee of experts, which was currently being proposed, would not he felt provide a satisfactory solution.

4. Costa P. Caranicas, speaking for Greece, praised the Secretariat's progress report and the first issue of the new UN publication on industrialization. Refering to his own country's industrialization program, he indicated the need for a balanced over-all development program. A lack of expert agreement on the problem of capital intensity was mentioned. Mr. Caranicas believed that a special UN agency for industrialization should be considered carefully but cautiously.

United Nations, Dept. of Public Information & Economic and Social Council.
Economic development: Industrialization. --2

5. The representatives of Netherlands and France defended the European Common Market.

6. The observer for Bulgaria, Peter Voutov, stated that the UN studies on industrialization were presented in such a way that no clear conclusion could be drawn likely to lead to the adoption of practical policies. Citing his own country as an example (seven-fold increase in industrialization since the war), he indicated that underdeveloped countries can achieve a great deal in the field of industrialization in a short time. But the only road to full development and economic independence, he declared, was the one that promoted not only light but also heavy industries. He was critical of the UN studies which advocated the successive development of handicrafts and light industry, and a relatively slow pace in the building of the heavier industries.

7. The draft resolution on industrialization related to economic development was introduced by the Brazilian delegation. Among other things, this resolution emphasized the need for the Secretary-General to accelerate his work of promoting the promotion of industrialization and productivity of underdeveloped countries. It also invited the Secretary-General to establish an Advisory Committee of Experts (consisting of not more than ten persons) to review and advise in this work. The second part of the draft resolution, dealing with trade as a necessity to industrialization, was originally very strongly worded--with references to the United States and to the "present disquieting commodity trends"--but these comments were removed from the final resolution as passed.

8. With reference to the suggestion that the Secretary-General form an Advisory Committee of Experts (as well as "to encourage the organization of seminars, consultations and training centres, and to publish the results of this work in the form of manuals when appropriate"), the Secretary-General submitted a statement of financial implications. He stated that the resources presently devoted to this area of work needed strengthening in two major respects: one in the direction of a much closer and earlier relationship to the development of technical assistance projects in the industrialization field, and the other in a fuller utilization of possibilities for co-operation with the regional commissions. For these purposes a small increase of the existing Headquarters staff was forseen for 1959. This would involve the addition of one senior and experienced officer to be in charge of the servicing activities in the technical assistance field, two other professional officers (one to assist the senior officer in the technical assistance field and the other for the studies to be undertaken with the regional economic commissions), and two general service staff. Separately calculated, these staff requirements would involve an additional expense of some $55,000. A two week meeting of a committee of (seven) experts, early in 1959, would involve an expenditure of about $9.000.

A.D.M.N.

United Nations, General Assembly
DEMOGRAPHIC CONDITIONS AND TRENDS IN THE NON-SELF-GOVERNING TERRITORIES
Committee on Information from Non-Self-Governing Territories (Report prepared by the Secretariat) A/AC.35/L.266, 14 February 1958.
312 : 325 (100)

1. There are about 110 million persons living in non-self-governing territories. Their distribution is about 95 million in Africa, about 10 million in the Far East and the Pacific area, and more than 4 million in the Caribbean and other areas. This report summarizes the available population statistics for these areas and goes some distance toward interpreting their meaning.

2. The two clearest demographic features common to these Territories are:

a. The populations are of a young age structure; and

b. The rate of population growth is very rapid.

Studies have indicated that these two population characteristics are not compatible with rapid social and economic progress. Young populations mean a major effort is taken up in raising a large number of children, while rapid increase in population may outstrip the rate at which social and economic betterment can take place.

3. Among the indices used in the presentation (computed on original or processed data) is that of the expectation of life at birth. This is only a rough approximation because of inaccuracies in the data, but it is interesting both as a measure of mortality and as a means of evaluating the levels of living generally. Since the degree of economic efficiency of a population is shown by (among other things) its age structure, the relation between the number of persons of normal working ages and the number of persons of dependent ages is also included as a measure of this efficiency. Finally, a high rate of population increase usually indicates the need for long-term planning designed both to match the population growth rate and to phase with economic and social development.

Size, Density and Sex-Age Structure of the Population

4. Extremes of size are included in the non-self-governing territories. For instance French West Africa and French Equatorial Africa have 4.6 and 2.5 million square kilometres respectively and the Federation of Nigeria has an estimated population of 31.2 million persons. While Pitcairn Island has an area of only 5 square kilometres and a population of only 125. There is great variation also in density, as some territories (Bechuanaland and the Falkland island) have less then one person per square kilometre, and other territories (Gibraltar, Hong Kong or Singapore) consist of just one urban centre. There are also some island territories (like Bermuda, Barbados and Mauritius) which have densities of several hundred persons per acre. It would be wrong to draw general conclusions without adding specific information on individual peoples and the resources available to the community. There are major defects in simple population enumeration, with under-enumeration of tribal groups, and probably of females in many cases. The least evolved populations (in some Pacific territories and some African Territories) are faced with problems of low per capita productivity and of a high dependency burden, as well as a greater need for social and educational facilities.

TABLE 1

Total Population and Density. Vital Rates and Approximate Expectation of Life at Birth in the Non-Self-Governing Territories
Average of Periods 1946-1950 and 1951-1955 and Per Cent of Annual Change Between Periods

	Density (Persons per km²)	Estimated total population (000)		Annual change per cent		Crude birth rate (Registered)			Crude death rate (Registered)			Infant mortality rate (Registered)			Approximate expectation of life at birth (e:) (both sexes)	
		1946-1950	1951-1955	In total population	Excess of births over deaths	1946-1950	1951-1955	Annual change per cent	1946-1950	1951-1955	Annual change per cent	1946-1950	1951-1955	Annual change per cent	1946-1950	1951-1955
I. **Africa and adjacent Territories**																
Basutoland	21	578.0	613.0	+ 1.2	...	...	...	...	...	...	...	...	...	...	...	...
Bechuanaland	0	302.0	317.6	+ 1.0	...	...	...	...	...	...	...	...	...	...	...	...
Belgian Congo a/	5	10,912.8	12,048.4	+ 2.1	...	...	30.9	...	...	22.9	...	...	102.5	...	...	...
Comoro Archip. b/	78	...	170.0	...	...	...	...	...	...	...	...	...	129.1	...	...	...
French Equat. Africa	2	4,249.4	4,544.0	+ 1.4	...	...	...	...	...	...	...	...	...	...	...	...
French West Africa c/	4	...	17,761.6	...	...	...	51.7	...	...	13.3	...	...	113.0	...	...	...
Gambia d/	27	254.6	286.0	+ 2.5	+ 1.7	36.3	36.0	- 0.2	22.0	17.1	- 4.4	112.1	104.8	- 1.3	50.0	51.4
Kenya	10	5,401.0	5,855.2	+ 1.7	...	...	...	...	...	...	...	...	...	...	...	...
Madagascar	8	4,193.2	4,558.6	+ 1.7	+ 1.3	25.7	32.4	+ 5.1	18.8	13.1	- 6.1	127.8	84.7	- 6.8	47.0	55.8
Mauritius e/	294	442.6	516.4	+ 3.3	+ 2.7	44.2	45.0	+ 0.4	20.7	14.9	- 5.6	122.5	81.2	- 6.7	48.0	56.4
Mauritius Rodrigues	138	13.2	14.0	+ 1.2	+ 2.7	37.1	41.0	+ 2.1	14.2	10.8	- 4.7	128.3	98.8	- 4.6	46.9	52.8
Nigeria f/	35	...	30,054.0	...	+ 3.6	...	49.9	...	...	14.1	...	...	84.0	...	...	55.9
Northern Rhodesia	3	1,754.6	2,015.2	+ 3.0	...	...	...	...	...	...	...	...	...	...	...	...
Nyasaland	20	2,193.6	2,435.8	+ 2.2	...	...	...	...	...	...	...	...	...	...	...	...
St. Helena	16	5.0	5.0	0.0	+ 2.1	32.8	28.3	- 2.7	9.3	9.0	- 0.7	58.1	43.8	-24.9	61.9	65.3
Seychelles	97	35.2	37.2	+ 1.1	+ 1.8	28.7	30.8	+ 1.5	11.8	12.1	+ 0.4	73.0	58.4	- 4.0	58.4	61.7
Sierra Leone g/	28	1,850.2	2,022.6	+ 1.9	+ 0.8	29.8	23.5	- 4.7	21.4	14.6	- 7.1	184.6	136.8	- 8.2	38.0	45.4
Somaliland, British	4	...	640.0	...	...	...	...	...	...	...	...	...	...	...	...	...
Somaliland, French	3	...	61.0	...	...	...	...	...	...	...	...	...	...	...	...	...
Swaziland	13	192.0	209.6	+ 1.8	...	...	...	...	...	...	...	...	...	...	...	...
Uganda	23	4,950.4	5,344.0	+ 1.6	+ 1.3	27.3	...	...	14.7	...	...	94.0	...	...	53.8	...
Zanzibar and Pemba	105	264.6	274.6	+ 0.8	+ 0.6	22.3	18.5	- 3.4	16.8	11.7	- 6.1	62.5	56.2	- 2.0	60.8	62.3
Aden Colony h/	676	...	138.4	...	+ 1.1	28.1	24.3	- 2.7	19.5	12.0	- 7.7	167.4	161.9	- 0.6	40.3	41.0
Cyprus i/	56	466.4	506.0	+ 1.7	+ 2.1	31.1	27.1	- 2.6	8.5	7.1	- 3.3	67.7	50.0	- 5.2	59.6	63.8
Gibraltar	4,167	22.8	24.2	+ 1.2	+ 1.3	21.0	22.6	+ 1.6	9.0	9.4	+ 0.8	31.1	28.3	- 1.8	68.4	69.2

a/ Vital rates for 1951 only. Expectation of life at birth (e:) in 1950-1952, Males 37.6, Females 40.0.
b/ Population estimated for 1955. Infant mortality rate for 1951
c/ Vital rates for 1951.
d/ Vital rates for Bathurst Colony only.
e/ e: in 1951-1953, Males 49.8, Females 52.3.
f/ Vital rates for Lagos only.
g/ Vital rates for 1946-1950 and 1951-1954.
h/ Census population in 8-II-1955.
i/ e: in 1948-1950, Males 63.6, Females 68.8.

TABLE 1 (continued)

	Density (Persons per km²)	Estimated total population (000) 1946-1950	Estimated total population (000) 1951-1955	Annual change per cent: In total population	Annual change per cent: Excess of births over deaths	Crude birth rate (Registered) 1946-1950	Crude birth rate (Registered) 1951-1955	Annual change per cent	Crude death rate (Registered) 1946-1950	Crude death rate (Registered) 1951-1955	Annual change per cent	Infant mortality rate (Registered) 1946-1950	Infant mortality rate (Registered) 1951-1955	Annual change per cent	Approximate expectation of life at birth (e:) (both sexes) 1946-1950	Approximate expectation of life at birth (e:) (both sexes) 1951-1955
II. Asia and Pacific																
American Samoa 1/	112	17.8	20.2	+ 2.7	+ 3.3	42.8	39.0	- 2.0	9.3	7.3	- 7.6	58.0	58.5	+ 0.2	61.9	61.7
Brunei	11	42.0	55.8	+ 6.6	+ 3.4	45.2	55.6	+ 4.6	19.3	14.6	- 4.9	129.6	106.6	- 3.6	46.8	51.1
Cook Isl.	70	14.6	15.4	+ 1.1	+ 2.2	41.4	41.7	+ 0.2	1.3	18.0	- 3.2	147.7	123.2	- 3.3	43.4	47.9
Fiji	19	272.6	318.0	+ 3.3	+ 2.9	40.2	39.7	+ 0.3	12.0	9.8	- 3.5	59.7	55.4	- 1.6	61.5	62.5
Gilbert and Ellice 2/	43	36.2	39.4	+ 1.8	+ 1.6	34.4	33.4	+ 0.7	21.2	16.1	- 6.0	147.1	113.4	- 5.8	43.5	49.7
Guam 1/	67	25.4	32.8	+ 5.8	+ 4.6	54.1	58.4	+ 1.6	11.7	9.5	- 3.8	67.7	37.3	- 9.0	59.6	66.8
Hawaii	34	480.4	479.8	+ 0.0	+ 2.3	27.7	29.8	+ 1.5	6.0	5.6	- 1.1	27.7	21.8	- 4.3	69.2	70.6
Hong Kong	2,310	1,843.4	2,226.0	+ 4.2	+ 2.2	26.7	35.0	+ 6.2	9.3	8.7	- 1.2	100.3	76.3	- 4.8	52.3	57.6
Neth. New Guinea	5	...	3,995.6	...	...	...	...	...	...	...	...	...	...	...	...	...
New Hebrides	4	48.5	52.4	+ 1.6	...	...	...	...	...	...	...	...	...	...	...	...
Niue 2/	19	4.2	5.0	+ 4.7	+ 2.0	36.2	40.8	+ 3.2	24.1	12.8	-11.8	191.4	60.4	-17.1	...	61.3
North Borneo	5	326.6	354.4	+ 1.7	+ 1.4	21.8	32.2	+ 9.7	14.6	12.3	- 3.1	124.6	95.8	- 4.6	47.6	53.5
Papua 3/	2	373.0	446.0	+ 3.9	...	...	...	...	...	...	...	...	...	...	...	...
Pitcairn Isl.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sarawak	5	551.8	591.8	+ 1.7	+ 1.7	...	25.3	...	...	8.6	...	...	89.1	...	...	...
Singapore	1,635	970.2	1,125.0	+ 2.3	+ 3.5	45.1	47.8	+ 1.2	13.1	10.3	- 4.4	82.4	63.4	- 4.6	56.2	60.6
Solomon Isl. (Br.) 4/	3	95.0	100.2	+ 1.1	+ 1.1	29.7	...	...	18.4	...	...	126.4	...	...	47.2	...
Tokelau	200	1.4	2.0	...	...	...	...	...	...	...	...	...	...	...	...	...
III. Caribbean Territories																
Bahama Isl.	8	75.8	86.8	+ 2.9	+ 2.1	33.2	34.1	+ 0.5	15.0	11.3	- 4.9	95.7	77.2	- 3.9	53.6	57.5
Barbados 5/	531	201.0	220.6	+ 1.9	+ 1.8	32.0	33.1	+ 0.7	15.3	13.3	- 2.6	146.8	132.9	- 1.9	43.6	46.1
Bermuda	774	35.8	39.4	+ 2.0	+ 1.8	26.6	27.1	+ 0.3	9.4	8.8	- 1.3	39.5	47.0	+ 3.8	...	64.6
British Guiana 6/	2	399.4	458.4	+ 3.0	+ 2.8	40.1	43.4	+ 1.6	14.5	12.9	- 2.4	81.8	76.4	- 1.3	56.4	57.6
British Honduras 7/	3	63.2	74.6	+ 3.6	+ 2.7	38.7	41.9	+ 1.6	14.8	11.2	- 4.9	108.4	90.7	- 3.3	50.5	54.4
Jamaica 8/	135	1,363.8	1,501.4	+ 2.0	+ 2.1	31.8	34.7	+ 1.8	13.0	10.9	- 3.1	85.5	69.4	- 3.8	55.6	59.2
Leeward Isl. 9/	117	109.4	121.6	+ 2.2	+ 2.2	34.7	36.8	+ 1.2	15.3	12.1	- 4.2	100.6	81.3	- 3.8	52.3	56.4
Trinidad-Tobago 10/	141	598.4	687.8	+ 3.0	+ 2.7	38.3	38.5	+ 0.0	12.7	11.0	- 2.8	76.2	73.3	- 0.8	57.6	58.2
Windward Isl.	146	399.4	458.4	+ 3.0	+ 2.3	36.7	39.5	+ 1.5	15.9	14.4	- 1.9	108.3	105.2	- 0.6	50.8	51.3
Virgin Isl. (U.S.)	70	27.0	24.4	- 1.9	+ 2.0	32.6	34.7	+ 1.3	13.9	12.6	- 1.9	83.3	47.8	- 8.5	56.0	64.4
IV. Other Territories																
Alaska	0	93.4	147.6	+ 11.6	+ 2.1	26.7	32.3	+ 4.2	10.3	6.6	- 7.2	56.2	41.2	- 5.3	62.5	66.0
Falkland Isl.	0	...	2.2	...	...	...	21.7	...	...	11.5	...	...	63.8	...	...	60.6

1/ Including U.S. armed forces. Vital rates for the periods of 1947-1950 and 1951-1955.
2/ Vital rates for the periods: 1946-1950 and 1951-1955.
3/ Including U.S. armed forces.
4/ Vital rates for periods 1947-1950 and 1951-1954.
5/ Total population for the mid-year of 1950 and 1955 only.
6/ Vital rates for 1947 only.
7/ e: in 1945-1947, Males 49.2, Females 52.9.
8/ e: in 1945-1947, Males 49.3, Females 52.1.
9/ e: in 1944-1948, Males 45.0, Females 49.0
10/ e: in 1945-1947, Males 51.3, Females 54.6, in 1950-1952, Males 55.7, Females 58.9.
11/ e: in 1946, Males 49.5, Females 54.5.
12/ e: in 1945-1947, Males 53.0, Females 56.0, in 1954, Males 59.6, Females 62.3.

TABLE 2

Population Distribution by Age and Sex in Non-Self-Governing Territories. Latest Census and/or Official Estimate (E)
Dependency Ratio and Index of Aging

(Dependency Ratio - number of dependents in the age brackets under 15 years and 65 years and over, per 100 persons in the age group 15-65)

(Index of Aging - number of old persons 65 years and over per 100 children under the age of 15)

Territories and census date		Enumerated or estimated population by major age groups a/ (both sexes)				Percentage distribution of population by age groups (both sexes)			Sex ratio Number of males per 100 females by age-groups				Dependency ratio	Index of aging
		All ages	0-14	15-64	65 /	0-14	15-64	65 /	All ages	0-14	15-64	65 /		
			(in thousands)											
I.	**Africa and Adjacent Territories**													
	Basutoland b/	7-V-46	557.7	210.9	312.0	34.8	37.8	56.0	6.2	78.2	99.0	67.3	71.7	78.8	16.5
	Bechuanaland	7-V-46	294.7	107.7	171.5	15.5	36.5	58.2	5.3	99.1	102.1	96.2	110.1	71.9	14.5
	Madagascar c/d/	(E)e/1955	4,674.0	1,963.1	2,710.9		42.0	...	...	97.3	104.6	92.4		...	...
	Mauritius, ex.dep.	29-VI-52	500.1	200.9	283.0	16.2	40.2	56.6	3.2	101.1	101.1	104.6	94.4	76.7	8.0
	" Rodrigues	29-VI-52	13.3	6.4	6.5	0.4	47.8	49.1	3.1	80.5	99.1	64.7	98.1	103.6	6.5
	Nigeria b/f/	1952-1953	29,711.1	13,151.9	14,179.8	2,379.4	44.3	...	...	95.7	106.5	88.2	85.1	...	...
	Northern Rhodesia b/g/	30-V-50	1,816.0	780.0	1,036.0		43.0	...	...	92.8	105.3	84.3		...	...
	St. Helena	27-X-46	4.7	1.9	2.6	0.2	40.9	53.9	5.2	85.0	92.1	80.9	74.6	85.5	12.8
	Seychelles h/	21-XII-47	34.6	15.9	16.2	2.5	46.0i/	...	...	91.6	97.3	89.8	70.0	...	...
	Swaziland b/ j/	7-V-46	181.3	94.0	65.9	21.4	51.8i/	...	...	94.1	106.5	99.7	43.7	...	...
	Uganda b/k/	23-VIII-48	4,917.5	2,083.8	2,264.6	569.1	42.4i/	...	...	100.0	106.4	95.7	94.7	...	...
	Zanzibar and Pemba	25-II-48	263.2	87.4	162.9	12.9	33.2	61.9	4.9	110.3	105.6	110.8	139.4	61.6	14.8
	Aden Colony	8-X-46	80.5	24.5	54.7	1.3	30.4	68.0	1.6	169.0	147.2	182.9	92.0	47.1	5.3
	Aden Colony (females only)		29.9	9.9	19.3	0.7	33.1	64.7	2.3	-	-	-	-	54.7	6.8
	Cyprus	10-XI-46	450.1	152.0	269.9	28.2	33.8	60.0	6.2	97.8	103.6	95.2	92.4	66.8	18.5
	Cyprus	(E)e/1955	520.4	179.3	306.9	34.2	34.4	59.0	6.6	96.1	104.9	91.7	92.6	69.6	19.1
	Gibraltar	3-VII-51	21.3	5.1	14.7	1.5	23.9	68.9	7.2	87.2	107.1	86.7	45.0	45.1	30.0
II.	**Asia and Pacific**														
	American Samoa l/	I-IV-50	18.9	8.8	9.7	0.4	46.3	51.3	2.4	107.7	111.4	104.2	113.1	94.8	5.2
	Brunei m/	27-XI-47	40.7	16.1	22.6	2.0	39.6	...	...	112.3	103.0	118.6	122.5	...	...
	Cook Islands	25-IX-45	14.1	6.5	7.2	0.4	45.8	51.3	2.8	104.1	103.3	105.1	98.0	94.8	6.2
	" "	25-IX-51	15.1	6.9	7.7	0.5	45.8	51.2	3.0	107.9	105.6	109.8	113.1	95.5	6.6
	Fiji	2-X-46	258.8	114.7	135.1	9.0	44.3	52.2	3.5	111.2	103.1	113.6	222.3	91.6	7.8
	"	(E)e/1955	337.9	145.1	178.9	13.9	43.0	52.9	4.1	109.2	104.3	107.8	203.2	88.9	9.6
	Guam l/	I-IV-50	59.5	16.1	42.6	0.8	27.1	71.6	1.3	224.8	106.3	296.3	73.9	39.7	5.0
	" (females only)		19.0	7.8	10.7	0.5	41.1	56.5	2.4	-	-	-	-	76.9	5.9
	Hawaii	I-IV-50	499.8	156.1	323.2	20.4	31.2	64.7	4.1	121.2	104.7	128.3	154.1	54.6	13.1
	" (females only)		225.9	76.3	141.6	8.0	33.8	62.7	3.5	-	-	-	-	59.6	10.5
	Niue c/	27-IX-51	4.5	1.8	2.5	0.2	39.7	56.4	3.9	95.5	97.7	95.8	72.8	77.3	10.0
	North Borneo c/	4-VI-51	334.1	132.0	189.2	12.9	39.5	...	...	106.5	107.7	105.5	110.8	...	...
	Sarawak n/	26-XI-47	546.4	216.1	302.6	27.7	39.5	...	...	106.0	105.9	105.7	111.1	...	...
	Singapore	29-IX-47	940.5	338.3	585.1	17.1	36.0	62.2	1.8	121.7	106.2	134.1	67.7	60.7	5.0
	Tokelau Islands	25-IX-51	1.6	0.7	0.8	0.1	42.4	53.1	4.5	86.1	82.0	92.4	59.1	88.1	10.5
III.	**Caribbean Territories**														
	Bahama Islands	6-XII-53	84.3	33.5	47.0	3.8	39.8	55.8	4.4	86.5	99.6	79.2	70.2	79.3	11.2
	Barbados	9-VI-46	192.8	64.0	116.7	12.1	33.2	60.5	6.3	80.1	97.3	76.6	41.5	65.2	18.9
	"	(E)e/1955	228.9	76.4	133.0	19.5	33.4	58.1	8.5	86.2	98.8	84.9	54.5	72.1	25.4
	Bermuda	22-X-50	37.3	12.2	22.9	2.1	32.7	61.6	5.7	94.3	102.4	98.4	72.3	62.5	17.5
	British Guiana n/	9-IV-46	369.3	139.3	215.3	14.7	37.7	58.3	4.0	98.1	100.1	98.2	68.4	71.5	10.6
	" "	(E)e/1954	453.8	192.3	245.5	16.0	42.4	54.1	3.5	99.3	103.0	99.0	67.1	84.9	8.3

/..

g/ e: in 1945-1947, Males 53.0, Females 56.0, in 1954, Males 59.6, Females 62.3.

TABLE 2 (continued)

Territories and census date		Enumerated or estimated population by major age groups a/ (both sexes)				Percentage distribution of population by age groups (both sexes)			Sex ratio Number of males per 100 females by age-groups				Dependency ratio	Index of aging
		All ages	0-14	15-64	65 +	0-14	15-64	65 +	All ages	0-14	15-64	65 +		
			(in thousands)											
III. Caribbean Territories (continued)														
British Honduras	9-IV-46	59.1	22.7	34.3	2.1	38.4	58.0	3.6	94.2	98.9	90.9	96.7	72.5	9.3
Jamaica c/	(E) b/ 1953	1,486.1	536.4	893.5	56.2	36.1	60.1	3.8	94.8	100.4	93.5	68.3	66.3	10.5
Leeward Islands	9-IV-46	108.8	40.9	62.0	5.9	37.6	57.0	5.4	83.1	98.6	78.1	45.9	75.4	14.3
Trinidad and Tobago	9-IV-46	557.0	205.0	327.4	24.6	36.8	58.8	4.4	100.5	101.4	101.4	81.1	70.1	12.0
" "	(E) e/ 1955	720.7	298.8	394.8	27.1	41.5	54.8	3.8	100.6	102.1	100.8	83.1	82.5	9.1
Virgin Islands (U.S.) l/	I-IV-50	26.7	10.4	14.2	2.0	39.1	53.4	7.5	96.2	101.0	97.6	66.9	87.4	19.3
Windward Islands	9-IV-46	251.5	104.3	135.0	12.2	41.4	53.7	4.9	84.5	102.1	75.7	54.2	86.2	11.7
IV. Other Territories														
Alaska	I-IV-50	128.6	34.1	89.8	4.7	26.5	69.8	3.7	161.6	105.3	188.2	237.0	43.2	13.9
" (females only)		49.2	16.6	31.2	1.4	33.8	63.4	2.8	-	-	-	-	54.6	8.5

a/ Population of unknown age omitted.
b/ African population.
c/ Indigenous population.
d/ Under 15 and 15 years and over.
e/ (E): midyear estimate.
f/ Age brackets: 0-14, 15-49, 50 years +; excluding British Cameroons.
g/ Sample census. Age classification: before puberty, after puberty.
h/ Age brackets: 0-20, 21-60, 61 +.
i/ Age bracket differs slightly from that of 0-14.
j/ Age brackets: 0-17, 18-50, 51 +.
k/ Age brackets: 0-15, 16-45, 46 +.
l/ Including U.S. armed forces.
m/ Age brackets: 0-14, 15-59, 60 +.
n/ Excluding 6,023 Amerindians.
o/ Except dependencies.

United Nations, General Assembly. Demographic conditions and trends in non-self-governing territories --2

5. Some of the Territories have reached relatively high levels of living owing to the integration of their economies into a metropolitan system and to their key position in world trade. In addition to a favourable economic situation, the establishment of efficient public health services has in many Territories been facilitated by their limited spatial and demographic dimensions and, in some cases, has been favoured by the concentration of a considerable part of the population in the urban areas. However, the present demographic situation in a majority of the Territories appears to correspond to their relatively less advanced stage of economic and social development. Most of these Territories share the attributes of a young age composition and high fertility rates. So far as it can be ascertained their mortality rates, particularly for infants, are often high. Consequently, in spite of high fertiligy rates, their rates of population increase, ranging from about 1% to 2% per year seem to be about the same as those in more developed countries. But this can be expected to change as the decline in the death rate is extended to such Territories.

6. Based on experience in the now industrialized countries, it is often thought that population increase due to a falling death rate was a symptom of well-being as well as of improved levels of living generally. This does not hold where death rates are suddenly reduced by modern methods of disease control. These methods often reduce the infectious disease death rate only to see parasitic diseases take a heavy toll--at least in chronic disabilities. Also the widening imbalance between fertility and mortality rates show a danger that production gains will be overcome by increased population and the poverty-ill health syndrome will be perpetuated. Some hope is seen in concentrated efforts to raise productivity in the non-self-governing territories by modern methods. Public health activities are also very important, and there is often a need to go beyond the administration of medecines.

7. Positive long-term public health programmes, including the provision of adequate maternal and child care, improved nutrition programmes, health education, better sanitation measures, and generally better family and community health services, are viewed with hope. Health-building programmes are indispensable for the attainment of higher standards of living and may also be enlarged to include the general well-being of the population.

8. In territories where actual or potential economic resources favour demographic expansion, programmes of such a nature are likely, in the long run to transform demographic surpluses from an obstacle to an asset. Finally, in territories confronted with the crisis of over-population and contemplating a slackening of the rate of population growth through family planning, the success of these policies may depend in the last instance upon prior acceptance by the society of the concept of higher educational and health standards associated with an improvement in the quality of living for the population.

A.D.K.

United Nations, Dept. of Public Information
NEAR EAST LOCUST ATTACK MET BY FAO AND TAB
Press Release FAO/956, 25 April 1958. 2 pages.
631 (56)

1. This is a report of a flare-up of swarms of desert locusts which were recently attacking agriculture in most countries of the Near East. It also gives a picture of cooperation by international organizations in dealing with the problem.

2. According to Owen B. Lean (UK), the FAO Desert Locust Control Officer, the new and alarming phase of the desert locust plague apparently started from breeding areas in the Somali Peninsula. The locusts had crossed the Red Sea in January and spread northward through Yemen and Saudi Arabia very quickly. In February and March, Jordan, Israel, Syria, Iraq and Iran became heavily infested and at least one swarm reached as far as Pakistan. In April, swarms entered Turkey--which had been locust free since 1953. Thus in about six weeks the locust plague spread over 2,000 miles to the north and east. One late example of the problem's magnitude was a report that a swarm 50 miles long was active in northern Iraq.

3. There had been some warning of the attack. In June 1957, at the request of the FAO Desert Locust Control Committee meeting in Tangier, FAO informed the governments concerned, warning them to prepare for an expansion of the plague.

4. There are at present some 60 locust control teams from Saudi Arabia, Yemen, Egypt, Iraq, Pakistan and India, who are attacking infestations in many parts of the Arabian Peninsula, They are under the guidance of FAO's Desert Locust Control Center in Jeddah. But is believed that a great number of new swarms are likely to form, threatening to carry the plague even farther afield--perhaps through Iran and Pakistan to India, while others re-penetrate Africa.

5. The work of the international teams is to attack the locust breeding areas in Saudi Arabia. At the same time, national organizations in other countries of the Near East are beginning to deal with the same problem. In the fear that new swarms may form, FAO has been requested by several governments to send urgent assistance. At the 9th session of the FAO Conference last November (in Rome), the delegates praised FAO's services in this area over the past six years and requested increased activities in the war on the locust. The Fao subcommittee on the Arabian Peninsula international campaign met (in Cairo) in late April 1958.

6. A special allocation of $90,000 was made by the Technical Assistance Board Executive Chairman from emergency funds to help combat the locusts. Of the total $75.000 was to be used to purchase urgently needed insecticides in India. The balance was expected to go toward extending operations in Saudi Arabia.

APPENDIX

DOXIADIS ASSOCIATES

Examples of Current Work

D.H.M.O.

A Regional Development Program for Greater Mussayib, Iraq, 1958.
711.2 (56)

A. PROBLEMS

Physical Problems

1. The Greater Mussayib irrigation project covers some 300,000 mesharas or 75.000 hectares of level land 60 km South of Baghdad. The nearest town of consequence is Hilla, which lies on the river Euphrates about 30 km South-West of the project area and has a population of 54,000 (1957 census). Hilla is a market center for a considerable district around and will undoubtedly serve as the major center for the produce of Greater Mussayib. Other settlements of secondary importance within reach of the project area are the towns of Mussayib 35 km to the West, Swaira 25 km to the North-East on the River Tigris, and the twin towns of Madhatiya and Hashemiya 35 km to the South (fig. 1)

2. Work on the irrigation of this area has been proceeding since 1952 and some 60% of the total area is expected to be ready for cultivation in the autumn of 1958. The major canal is completed, and is designed to serve the area through 12 branch canals and a network of open ditches which devide the land into 2745 rectangular farm units, each measuring 66.2/3 mesharas, or 333.1/3 by 500 meters. This gross measurement is roughly equivalent to 50 mesharas of cultivatable land (fig. 2).

3. Other Government projects likely to affect the development of Greater Mussayib (see fig. 3) are:

a. The existing Latifiya irrigation project, which has created 500 farm units of 50 mesharas each and which lies immediately to the North of Greater Mussayib. With the exception of a central headquarters settlement, no villages have been created in this project.

b. A barrage projected on the Tigris near Swaira will result in the eventual irrigation of almost the entire area between Greater Mussayib and the Tigris. Part of this is likely to take place in the near future and the whole within the next 10-20 years.

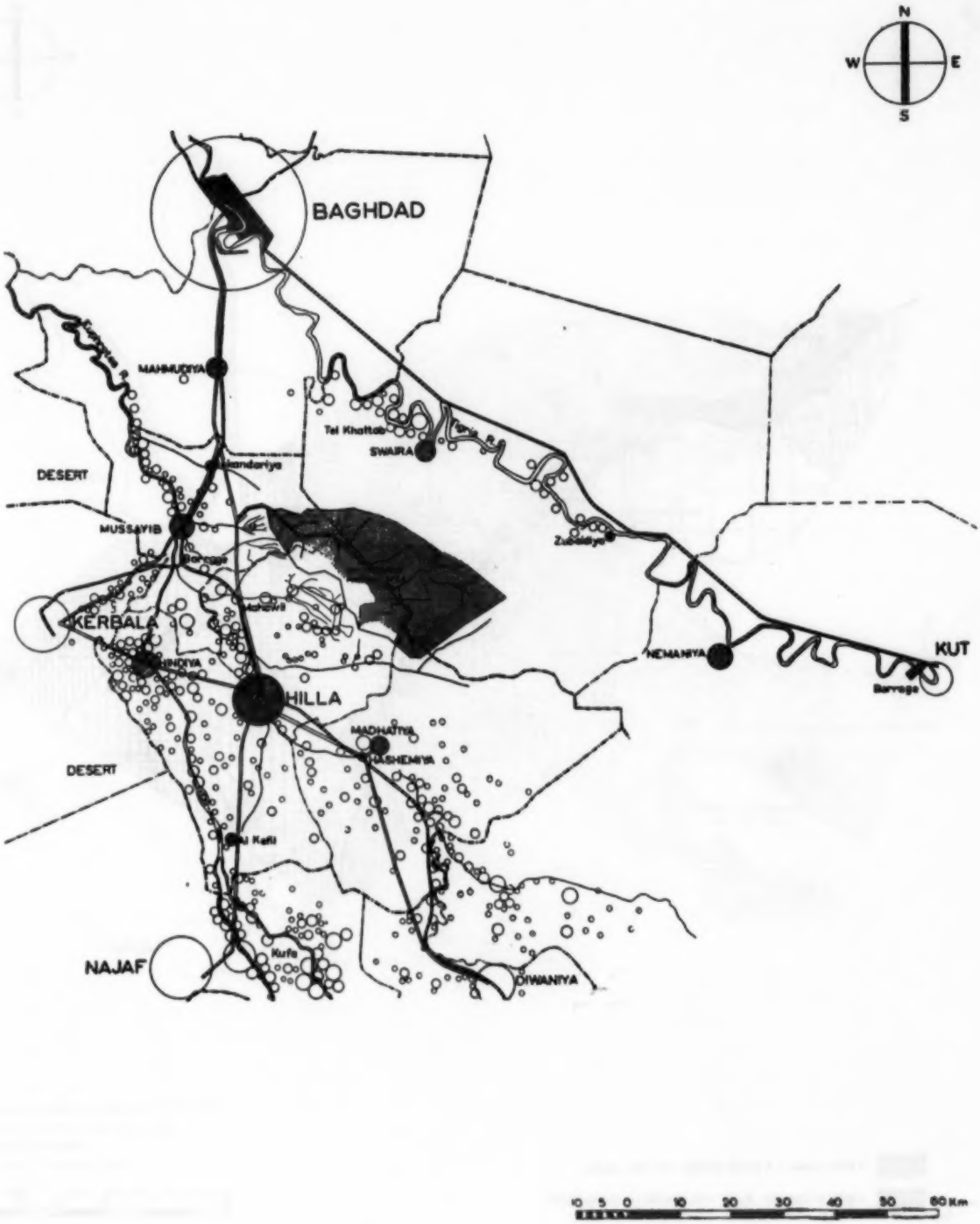
c. The construction of a new railway line is projected from Baghdad to Basra, following the right bank of the Tigris river. The Swaira railway station is likely to become important in the development of Greater Mussayib. Until this new line is built the area will be served by the existing Baghdad-Basra route which passes through Hilla.

d. Two projected roads will influence the future of Greater Mussayib: one will connect the existing Baghdad-Hilla road to the line of the new railway from a point some 30 km South of Baghdad across to Swaira, and then South-Eastwards. The other will run from West to East some kilometers South of the project area, connecting the twin towns of Madhatiya and Hashimiya with a town on the above new road.

e. Following the Government's policy of encouraging industrial development, a new textile factory is planned for Hilla and a rayon plant South of Mussayib. A new cement factory, under private management, has just been completed at Mussayib.

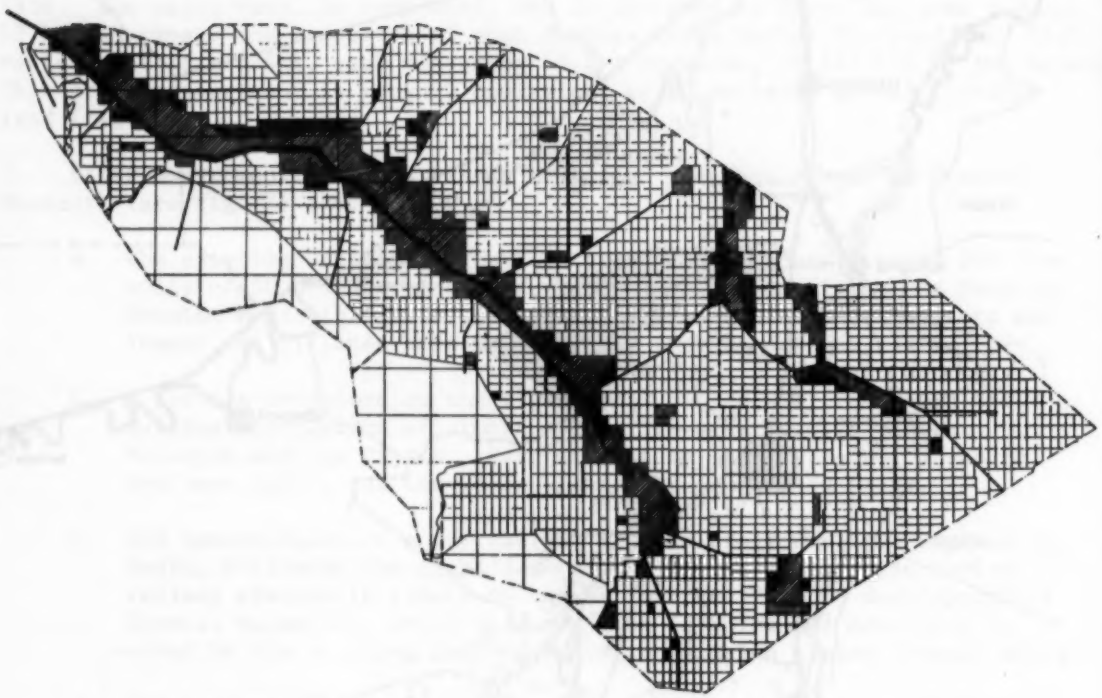
GREATER MUSSAYIB - THE PROJECT AREA AND THE SURROUNDING REGION

Fig. 1



GREATER MUSSAYIB - LAND DIVISION

Fig. 2



LAND CLASS 5 & 6 NOT DIVIDED IN FARM PLOTS

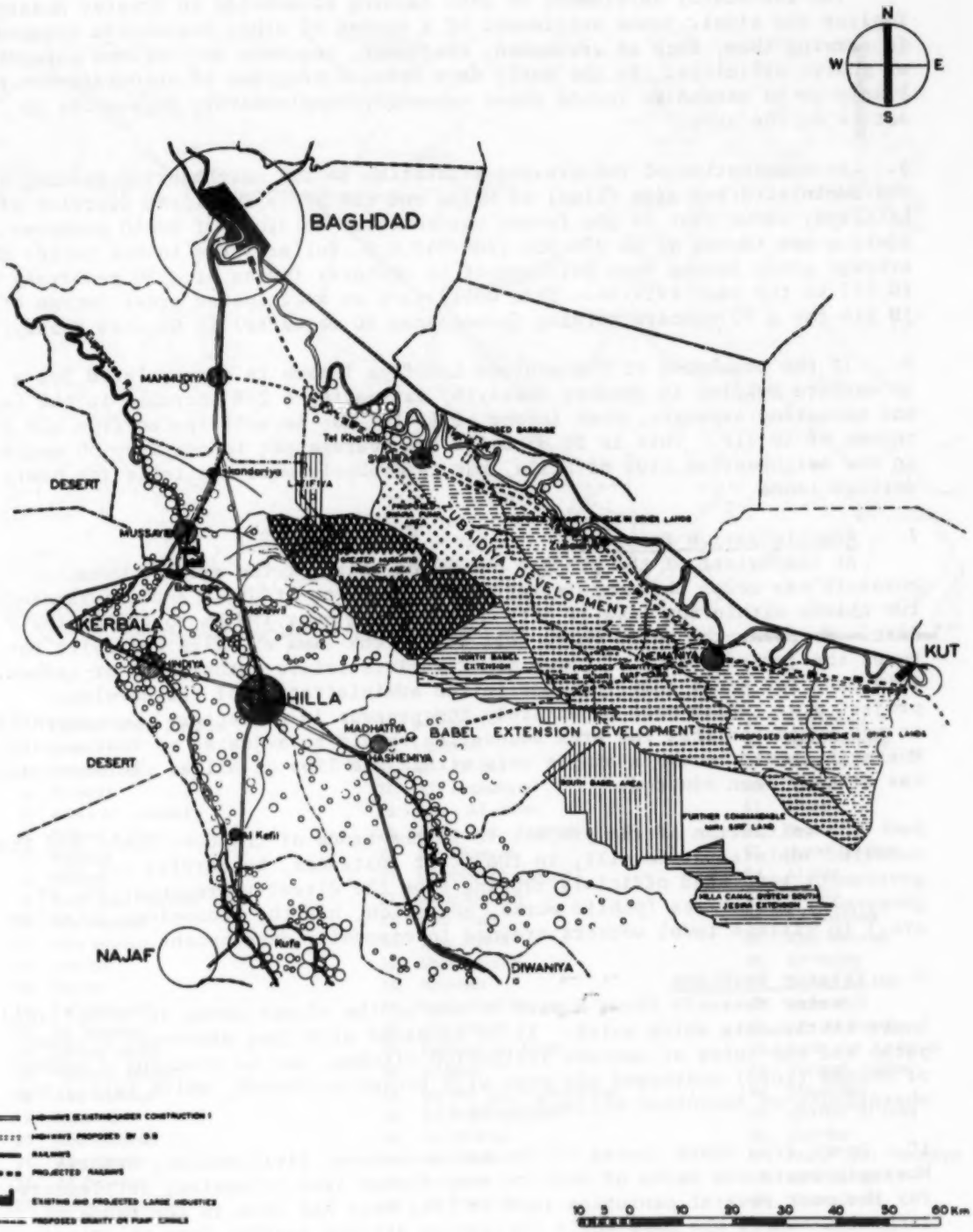
LAND CLASS 1,2,3,4 NOT DIVIDED IN FARM PLOTS

0 2 4 6 8 10 12 Km

DOXIADIS ASSOCIATES - CONSULTING ENGINEERS

DEVELOPMENT PROJECTS IN THE AREA OF GREATER MUSSAYIB

Fig. 3



DOXIADIS ASSOCIATES - CONSULTING ENGINEERS

4. Social and Economic Problems

The successful settlement of 2745 farming households in Greater Mussayib implies the simultaneous settlement of a number of other households engaged in serving them, such as tradesmen, craftsmen, teachers and various categories of public officials. In the early days special programs of encouragement are likely to be needed to induce these necessary supplementary households to settle in the area.

5. An examination of the present situtation in two neighbouring farming areas, the administrative area (liwa) of Hilla and the newly developed district of Latifiya, shows that in the former agricultural holdings of 50-60 mesharas yield a net income of ID 250-300 (700-840 U.S. dollars) and in the latter the average gross income from holdings of 40 mesharas (gross area 50 mesharas) was ID 173 in the year 1953-54. This would give an anticipated gross income of ID 216 for a 50 meshara holding (gross area 60 mesharas) in Greater Mussayib.

6. If the breakdown of the minimum Latifiya income is extrapolated for a 50 meshara holding in Greater Mussayib, estimating a 25% increase in the farm and marketing expenses, a net income of ID 167 can be anticipated from the gross income of ID 216. This is ID 83 below the average net income from 50 mesharas in the neighbouring liwa of Hilla, but is probably more realistic for newly settled lands.

7. Administrative Problems

At the outset of the project about one third of the area of Greater Mussayib was under the administrative jurisdiction of Hilla and the remaining two thirds within the liwa of Kut, a town lying over 100 km to the South-East. Moreover the third which fell within the liwa of Hilla was split between the jurisdictions of three minor administrative authorities or qadhas. This made for great complications in the administration of the developed project area, which will be entirely homogeneous in character. Consequently it was suggested that the area boundaries should be adjusted so that Greater Mussayib should become a single unit within the liwa of Hilla. This proposal has already been adopted.

8. The initiation of the project is in the hands of the Government and its detailed administration will, in the first instances, be carried out by government appointed officials ranging from the direct representatives of government ministries (public works, education, health, economics, interior, etc.) to village level workers trained in community development.

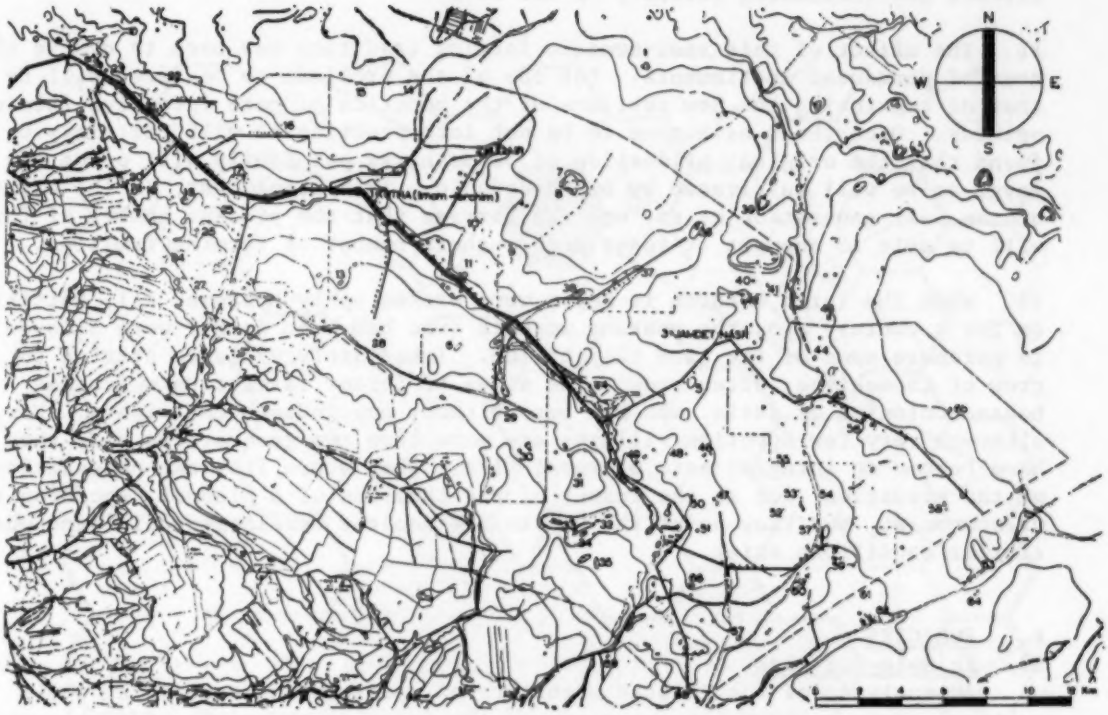
9. Ekistic Problems

Greater Mussayib forms a part of one of the oldest areas of established human settlements which exist. It is threaded with long abandoned trodden paths and the ruins of ancient irrigation ditches, and it contains a number of mounds (tels) scattered all over with broken potsherds, which betray the whereabouts of forgotten villages (fig. 4)

10. Apart from these traces of the earliest human civilization, Greater Mussayib bears the marks of more recent, though less intensive, settlements. For the past several centuries land in this area has been in the hands of large landowners who have built irrigation ditches leading from the Tigris

GREATER MUSSAYIB - ARCHAEOLOGICAL SITES

Fig. 4



1. Kutha - Imam Ibrahim
2. Uqair
3. Jamdet Nasr
4. Ibreedj
5. Abu - Al - Abeed
6. Dahlat Kutha
7. Fahood
8. Haribd
9. Sadr Abu Harima
10. Hor Haribd
11. Abu Haziza
12. Haziza
13. Telfah
14. Tel Hamadi
15. Al Jayshiat
16. Saliya Hadjr
17. Tabriya Shaair
18. Abu Kabour
19. Namrud
20. Abu Hamrah
21. Abu Shayr
22. Al Doweer
23. Kabr Mardi
24. Murhash
25. Hameed
26. Al - Zanbur
27. Al - Midadiya
28. Abu - Al - Rami
29. Ishen Abu - Tamrah
30. Abu Tamrah
31. Ibrahim Al Kurani
32. Abu Alamah
33. Abu Hatb
34. Abu Biarik
35. Shark Biarik
36. Adjrash
37. Rukbat el Nassa
38. Abu Harim
39. Rashaid Al Shutt
40. Anteek
41. Saleea Al Birghoothian
42. Al Birghoothian
43. Al Dhahak
44. Abu Kabr
45. Sarissar
46. Al Reegiya
47. Al Deema
48. Matb Hilalia
49. Sarissar
50. Touim
51. Dhiab
52. Touloul al Ker
53. Hurat Hilalia
54. Al Ker
55. Hilalia
56. Al Karrook
57. Abu Nemrah
58. Al Hajim
59. Djibal Al Nar
60. Basmah
61. Am Al Bayd
62. Sadr Am Al Bayd
63. Tarmah Zubar
64. Shkootha
65. Kortlat Al Iraq
66. Zurriba
67. Hurat Abu Taridjiya
68. Al Kharab
69. Sureadeeb

or the Euphrates and grown wheat or barley alternatively with a year of fallow until production has become uneconomic through the silting up of the irrigation ditches and increasing salinity of the soil.

11. The effect of this semi-nomadic farming tradition has been to denude the area of permanent settlements. But one of the problems to be faced will be that of convincing the new settlers of the benefits of more intensive farming methods. Once these have come to be put into practice it will certainly be found that the original allocation of 50 mesharas per family will prove too large to be well cultivated by one household. This means that, in the course of the next generation or so, one can foresee that the present number of farms will be able to support at least double their number of farming families.

12. When the large estates in Egypt were broken up by Mohammed Ali, getting on for a century ago, the peasant workers (who had been serfs) were allowed to purchase some of the land they tilled. Immediately villages started to grow of themselves, often around the sites of former farmsteads which had housed colonies of serfs, who had been without any independent rights. Now, although very few Egyptian villages are more than two generations old, they have become an integral part of rural life. They arose from the necessities of the situation, not as the result of the theories of a planner, sociologist or economist, but they point the way to the healthy development of lands where similar conditions exist.

B. POLICIES

13. Ekistic Policies

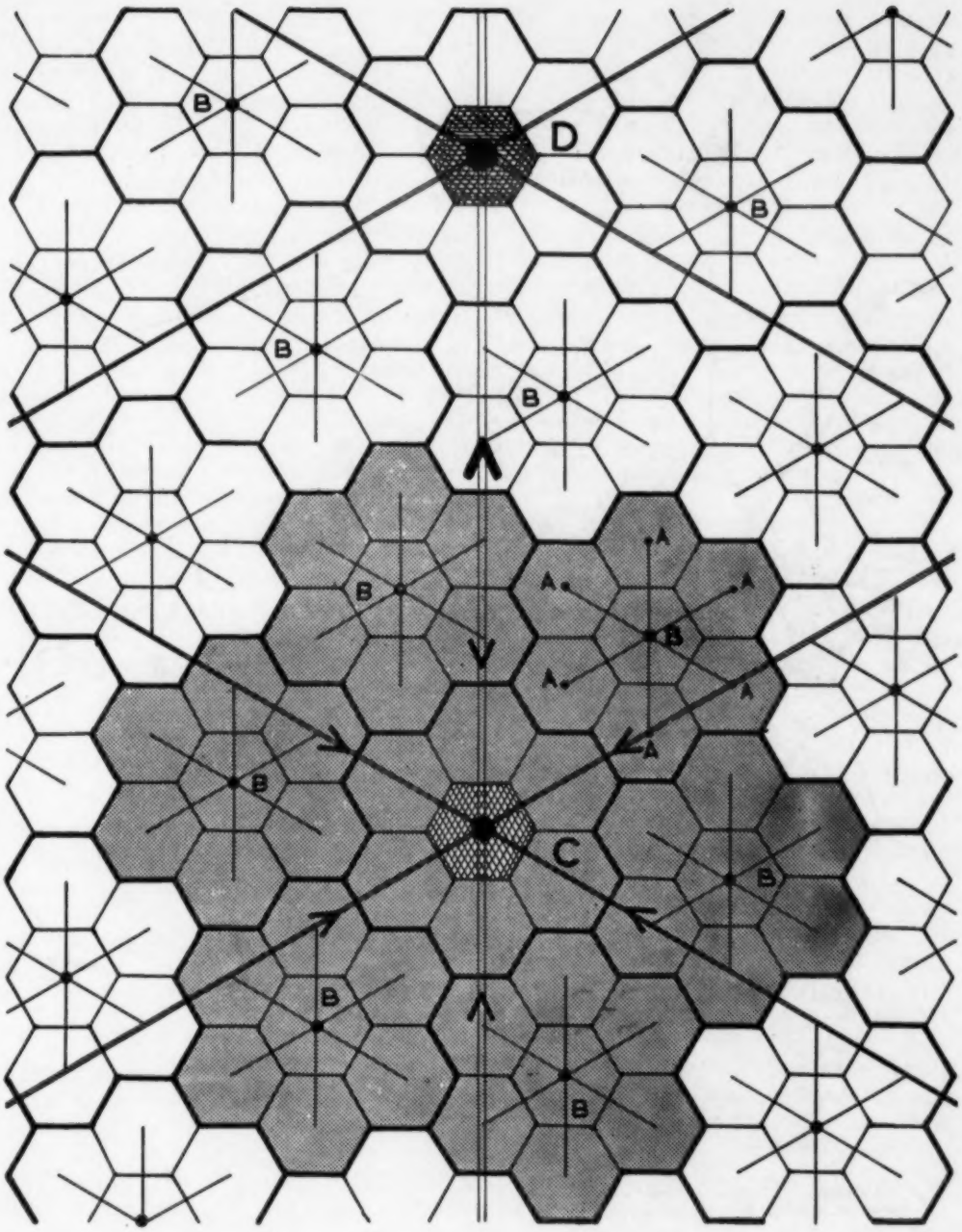
An analysis of the ekistic structure of settlements based on an agricultural economy throws up a pattern of the location and sizes of settlements which is very similar all over the world. As Walter Christaller showed in his study of South Germany (Die zentralen Orte in Suddeutschland, 1933) this pattern tends to follow the hexagonal honey-comb form, diverting from it only when there is a marked change in physical conditions: e.g. a river or range of hills, an area of swamp or desert land, etc.

14. Each of the hexagons in this fundamental pattern represents the area of land farmed from a single village unit (fig. 5). In theory every six hexagons surround a seventh which contains a larger village (a Class B community). The inhabitants of this village, in addition to farming the area around it, provide certain services for all seven communities. Six of these small constellations then encircle a seventh which contains, as its center, a still larger community (Class C), usually of market town status, and this pattern can theoretically be extended almost ad lib.

15. An analysis of the present community structure of the region within which Greater Mussayib is situated shows that the town of Hilla serves as a major (Class D) center for the entire region. Theoretically it should be surrounded by six equal hexagonal areas, each containing a central market town (Class C). A glance at fig. 6 shows the physical attractions or deterrents which have encouraged or prevented the formation of these centers. The presence of rivers or canals serve as inducements to settlements, drawing them from the theoretic center point of the hexagons. Similarly, the presence of large swamps or tracts of desert may entirely inhibit the formation of any settlements at all.

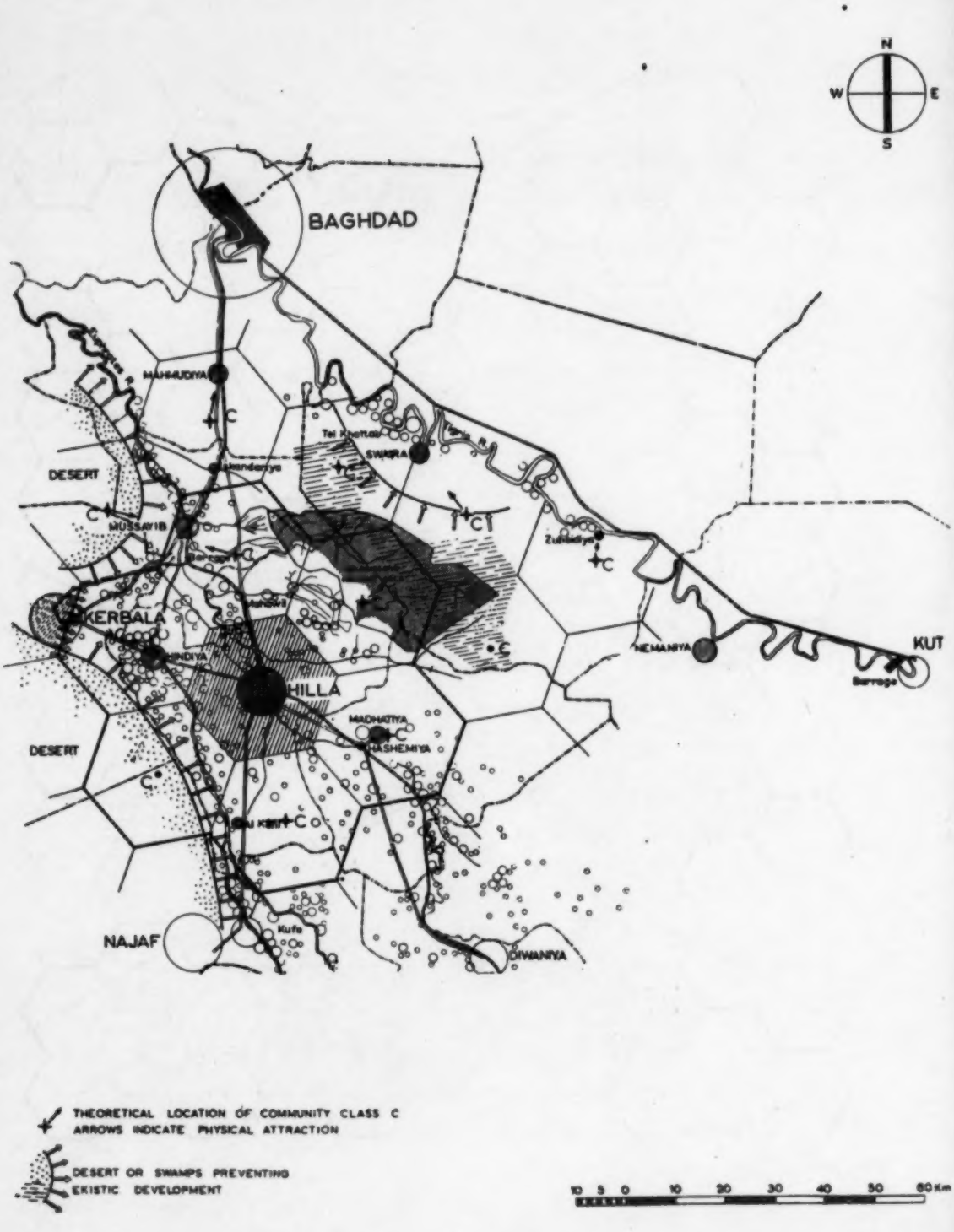
REGIONAL PATTERN - THE FORMATION OF COMMUNITIES «C» & «D»

Fig. 5



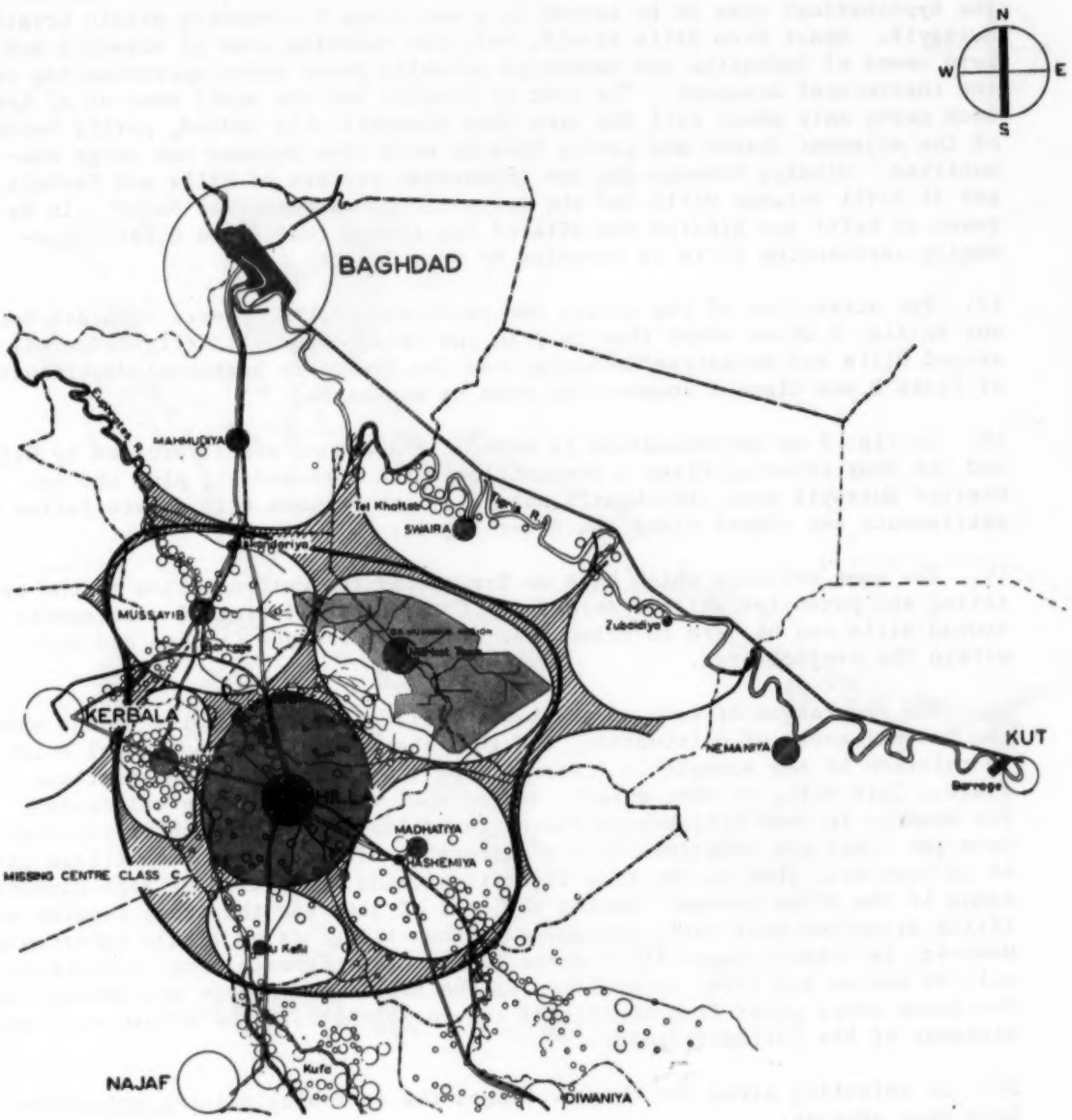
HILLA AREA - THE THEORETICAL HEXAGONAL PATTERN

Fig. 6



HILLA AREA - EXISTING EKISTIC STRUCTURE

Fig. 7



A regional development program for Greater Mussayib, Iraq --4

16. The actual situation is shown more clearly in fig. 7, which also includes the hypothetical area to be served by a new Class C community within Greater Mussayib. Apart from Hilla itself, only the existing town of Mussayib and the twin towns of Madhatiya and Hashemiya actually serve areas approximating to the theoretical hexagons. The town of Hindiya and the small town of Al Kefil each serve only about half the area they theoretically should, partly because of the adjacent desert and partly because each lies between two large communities: Hindiya between the two industrial centers of Hilla and Kerbala, and Al Kefil between Hilla and the large religious center of Najaf. In between Al Kefil and Hindiya the site of the theoretical sixth Class C community surrounding Hilla is occupied by pure desert.

17. The attraction of the rivers and repulsion of the deserts is again brought out in fig. 8 which shows that only in the relatively well irrigated areas around Hilla and Madhatiya/Hashemiya can the theoretic hexagonal distribution of Class B and Class A communities even be approached.

18. In fig. 9 an approximation is made of the actual areas serviced by Hilla and the four existing Class C communities which surround it, plus the new Greater Mussayib area, which will act as a link between this constellation of settlements and others along the River Tigris.

19. The same policies which have so far guided the determination of the existing and potential ekistic relations of the constellation of settlements around Hilla can be used to select the sites for the new Class A and B villages within the project area.

20. The population of each of the basic villages (Class A) will depend upon the intensiveness of cultivation, and thus the size of the individual holdings in relation to the acceptable distance from the farmhouse to the furthest field. This will, to some extent, depend upon the crops being cultivated. For example in some villages in the north of Iraq olive growing is important. Here the trees are sometimes at a considerable distance from the village and, it is reported, that at the time of fruit-picking the entire village community camps in the olive groves. During the rest of the year the trees require so little attention that their closeness to the village is of little importance. However, in Greater Mussayib it seems likely that the main crops cultivated will be cotton and rice, in addition to the traditional wheat and barley, and for these crops under Iraq conditions the farmer needs to be within easy walking distance of his furthest field.

21. In selecting sites for these villages the following guiding principles have been adopted:

a. Villages should be central to the area they serve

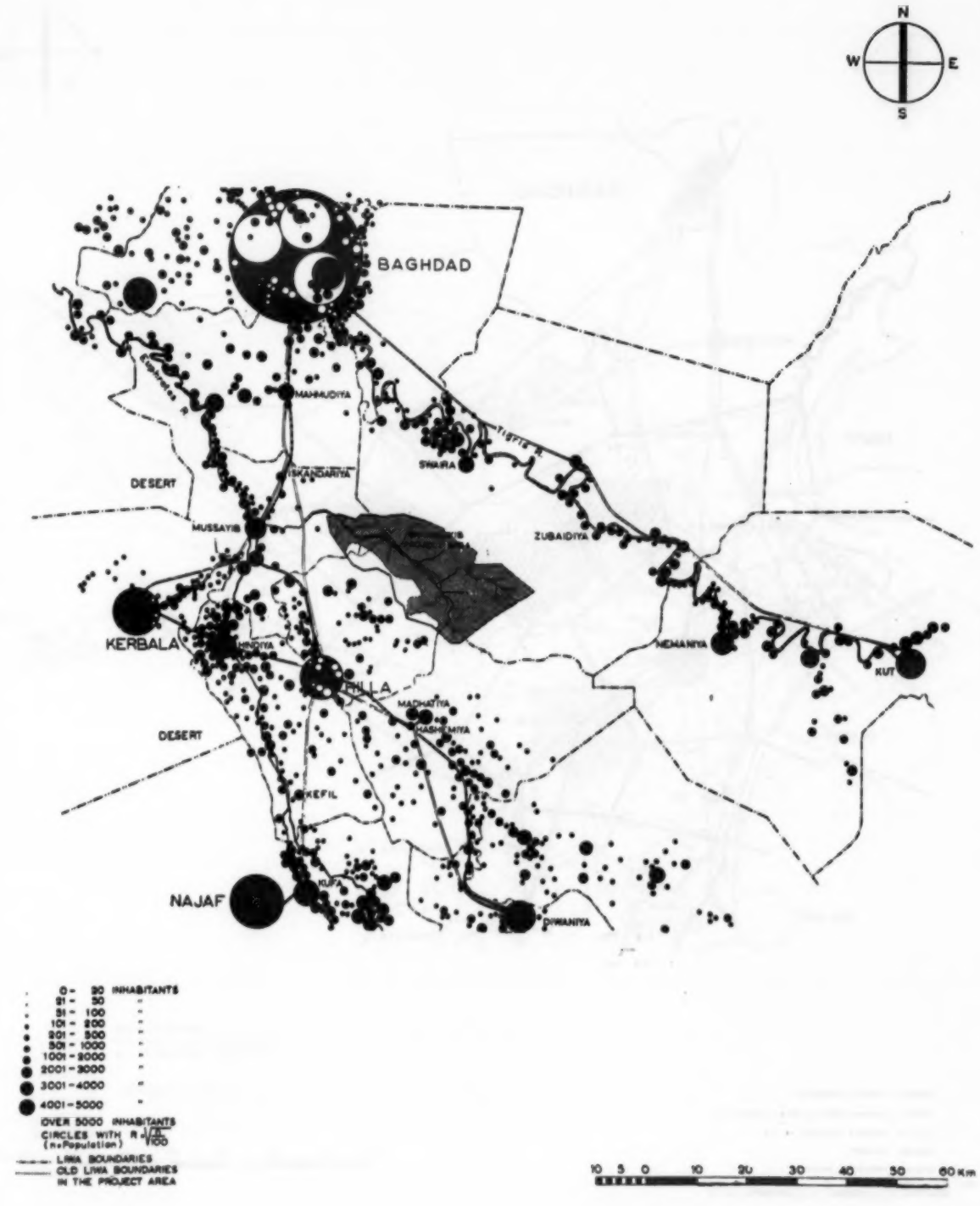
b. Villages should be accessible to points of importance along the main irrigation canals.

c. Villages should be located near the highways crossing the area, but not along them.

d. Villages should be distributed evenly over the project area.

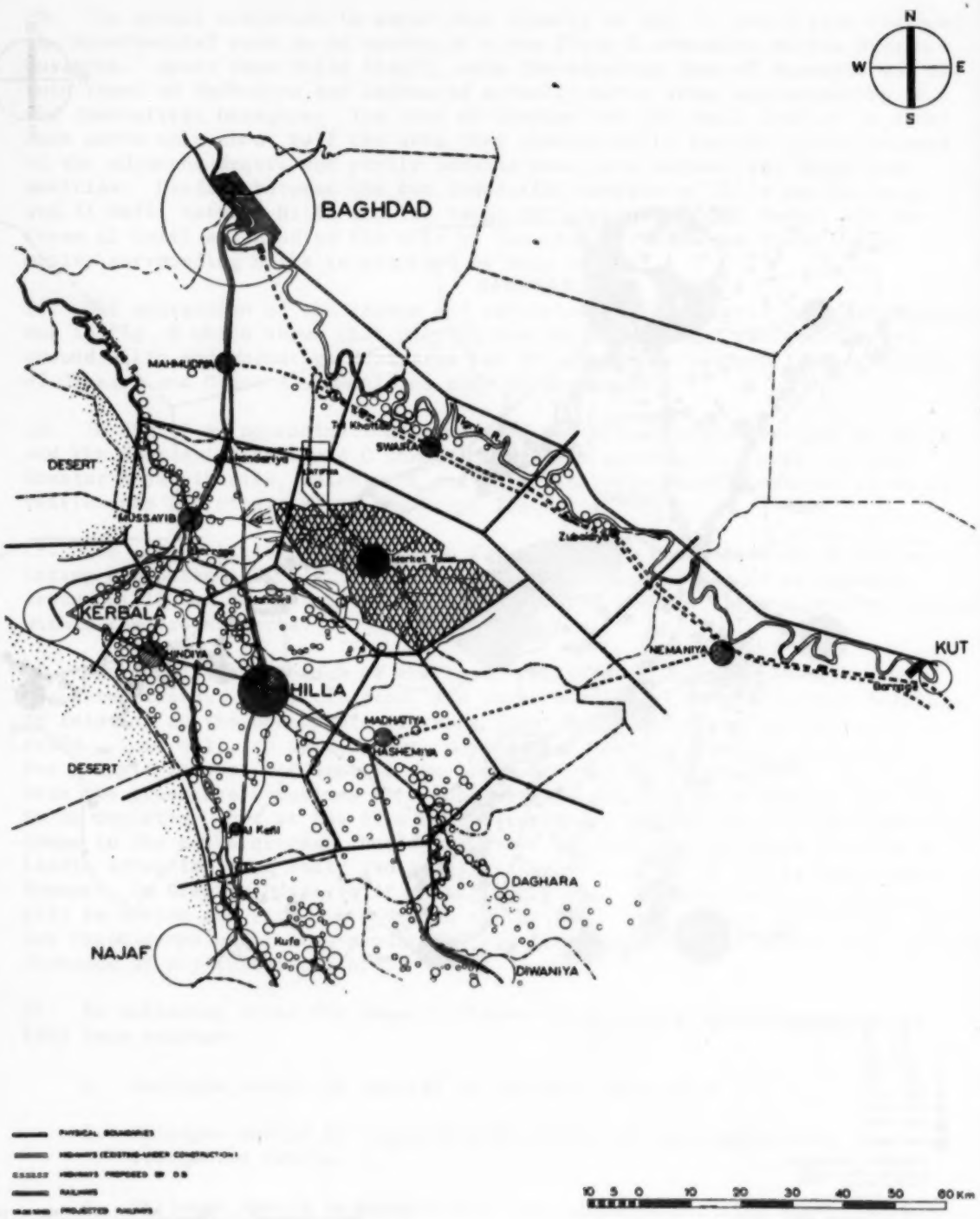
EKISTIC PATTERN OF THE REGION

Fig. 8



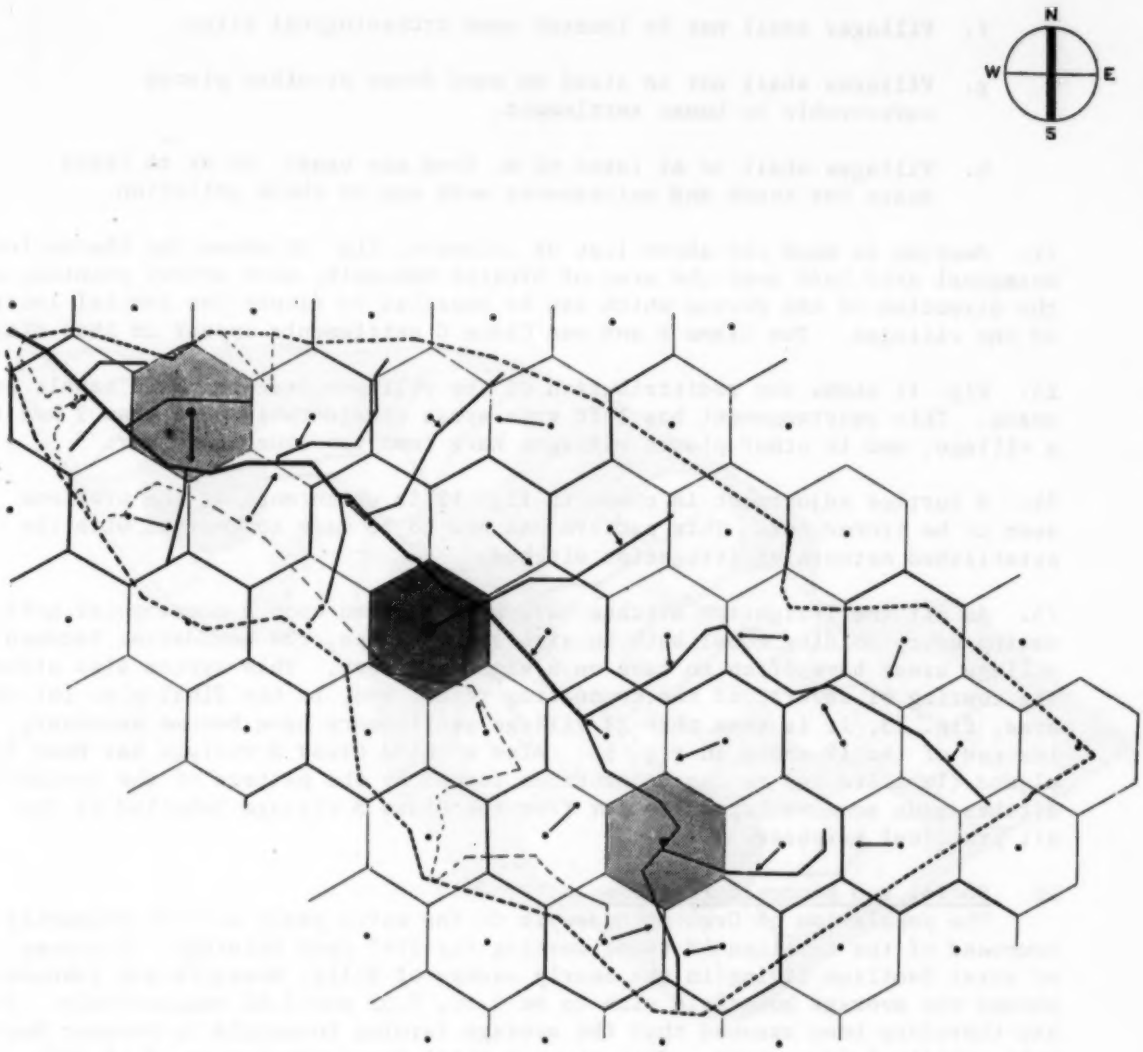
HILLA AREA - EXISTING EKISTIC STRUCTURE
PHYSICAL BOUNDARIES OF AREAS SERVED BY EACH CENTRE

Fig. 9



GREATER MUSSAYIB - APPLICATION OF THE THEORETICAL HEXAGONAL PATTERN OF COMMUNITIES

Fig. 10


N
W
E
S
DIRECTION IN WHICH IT IS EXPECTED THAT THE SETTLEMENTS WILL BE DRAWN BY OTHER FORCES
COMMUNITY CLASS A
COMMUNITY CLASS B
COMMUNITY CLASS C
0 2 4 6 8 10 12 Km.

e. As far as possible, villages should be sited on poor farming land.

f. Villages shall not be located upon archaelogical sites.

g. Villages shall not be sited on sand dunes or other places unfavorable to human settlement.

h. Villages shall be at least 40 m. from any canal, so as to leave space for roads and maintenance work and to check pollution.

22. Bearing in mind the above list of criteria, fig. 10 shows the theoretical hexagonal grid laid over the area of Greater Mussayib, with arrows pointing in the direction of the forces which can be expected to divert the central location of the villages. Two Class B and one Class C settlements appear in this diagram.

23. Fig. 11 shows the redistribution of the villages near the main canals and roads. This rearrangement has left some areas considerably more than 3 kms from a village, and in other places villages have come too close together.

24. A further adjustment is shown in fig. 12 in which most of the problems seem to be ironed out. This pattern has now to be made to conform with the established network of irrigation ditches.

25. As all the irrigation ditches have been planned upon a rectangular grid, making every holding equal both in size and in shape, the boundaries between village areas have often to take on a zigzag pattern. This system also affects the routing of several of the connecting roads, and, in the final plan for the area, fig. 13, it is seen that 23 village settlements have become necessary, instead of the 19 shown in fig. 12. Also a third Class B village has been included (labelled V4) as the connections forced by the pattern of the irrigation ditches made some villages too far from the Class B village labelled V3 for all practical purposes.

26. Social and Economic Policies

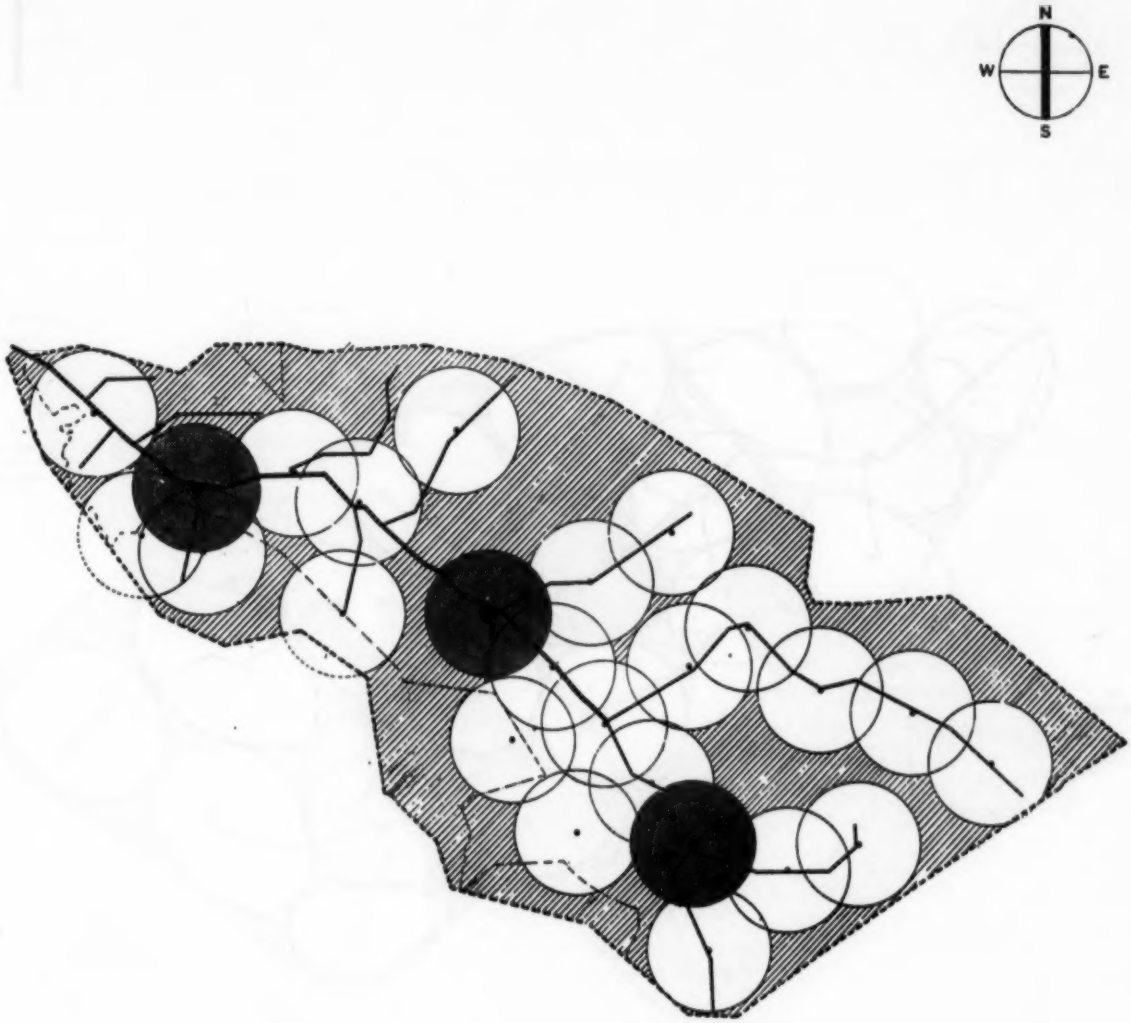
The population of Greater Mussayib in the early years will be primarily composed of the families of those working its 2745 farm holdings. A survey of rural families living in the nearly qadhas of Hilla, Mussayib and Iskenderiya showed the average household size to be 5.60, 5.52 and 5.62 respectively. It has therefore been assumed that the average farming household in Greater Mussayib will contain 5.60 persons. This gives a total basic population of 15.400.

27. A survey of the non-farming households in Hilla liwa showed that, for every 1000 people, there were the following non-farming establishements:

Hilla town	Countryside	
21.5	5.8	industrial workshops
16.5	4.4	commercial shops
5.5	2.0	coffee shops
43.5	12.2	

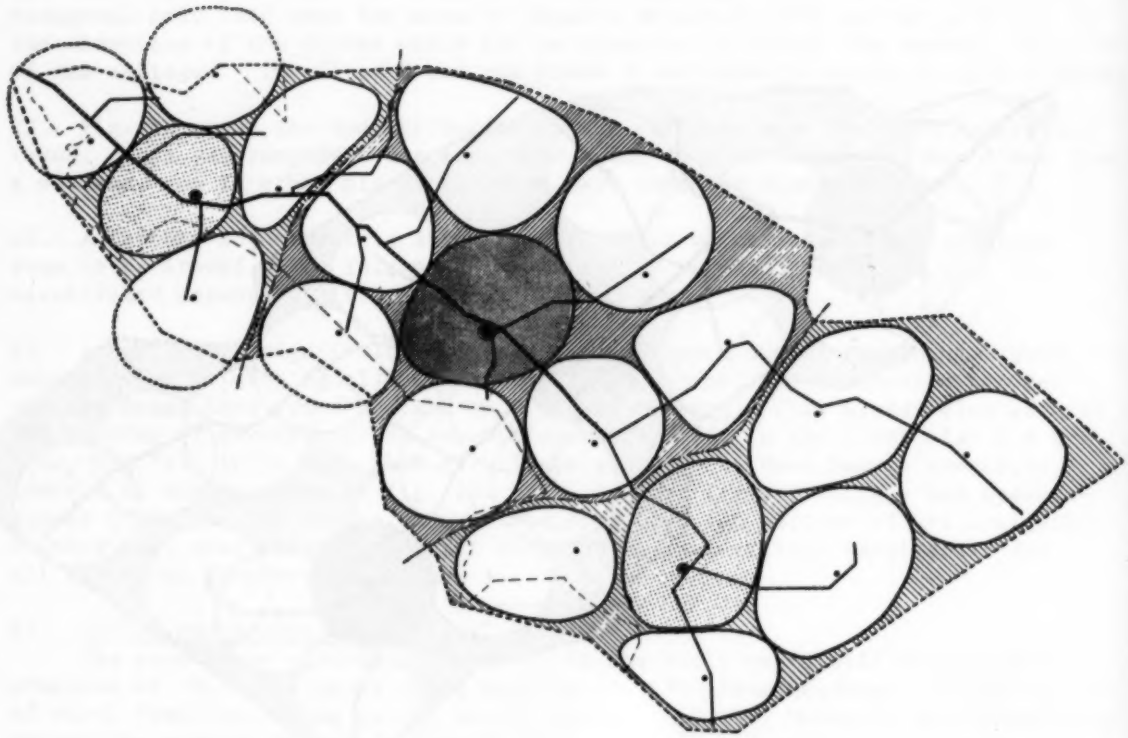
GREATER MUSSAYIB - RELOCATION OF THE COMMUNITIES ALONGSIDE THE MAIN CANALS

Fig. 11



GREATER MUSSAYIB - COMMUNITY GROUPING

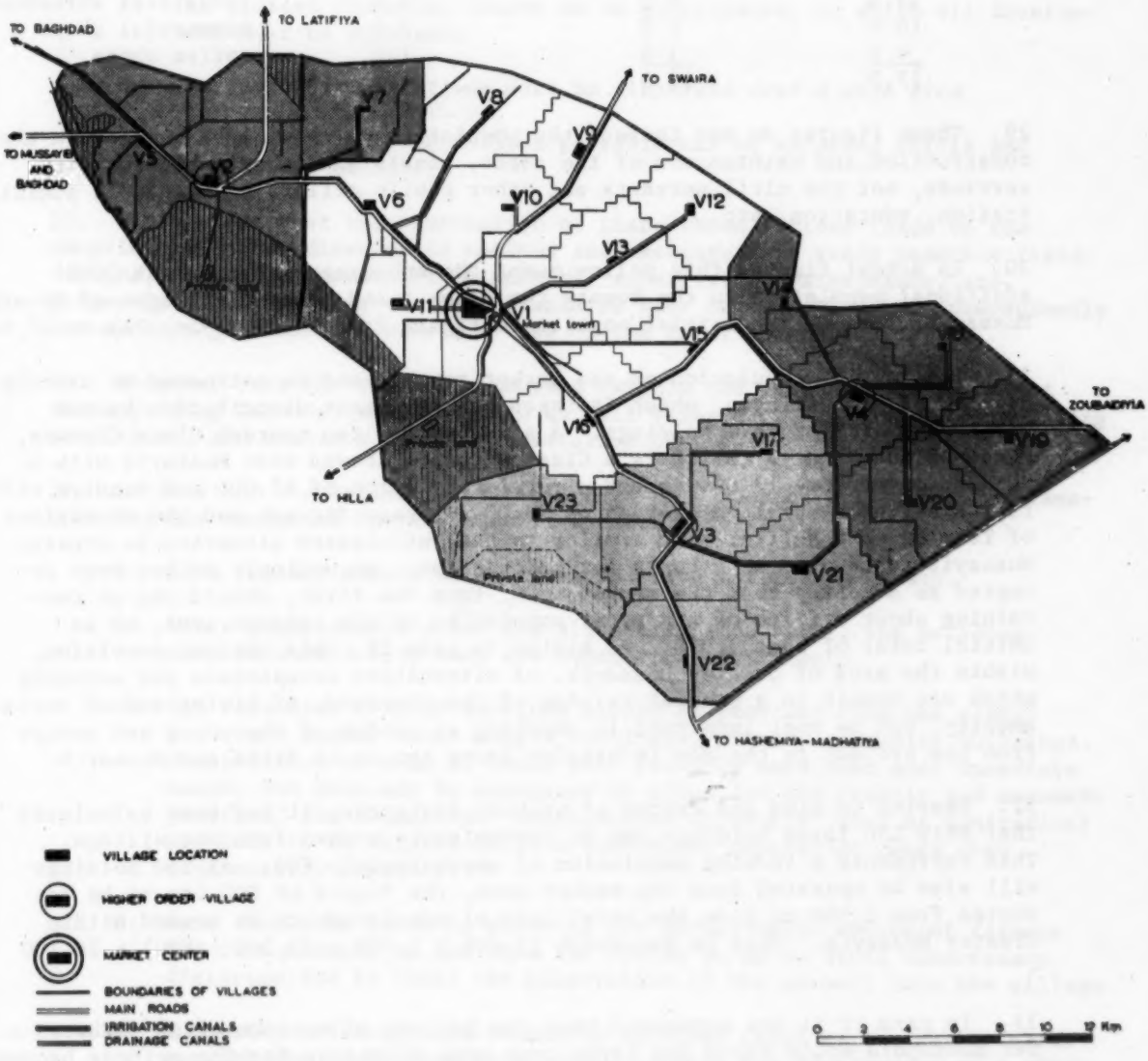
Fig. 12



DOXIADIS ASSOCIATES - CONSULTING ENGINEERS

GREATER MUSSAYIB - THE PLAN

Fig. 13



A regional development program for Greater Mussayib, Iraq --6

28. The distinction between a craftsman and a tradesman in rural areas becomes somewhat blurred. For instance metal work, leather work and tailoring tend to fall into both categories simultaneously. But, on the basis of these figures, and considering also those for the whole of Iraq, the following estimates for Greater Mussayib have been drawn up as a policy which should be actively pursued in the best interests of the project.

Per 1000 population of Greater Mussayib:

Market Town	Class B Villages	Class A Villages	
13.5	9.0	4.0	industrial workshops
10.0	7.0	3.0	commercial shops
4.0	3.0	1.0	coffee shops
27.5	19.0	8.2	

29. These figures do not include the population which will be engaged in the construction and maintenance of the roads, canals and other public utility services, nor the civil servants and other public officials engaged in administration, education, etc.

30. In actual figures this policy means the encouragement of about 2000 additional population in the twenty two Class B and Class A villages of Greater Mussayib, raising the initial population figure from 15,400 (para 26) to 17,400.

31. The initial population of the market town cannot be estimated so exactly as that of the villages, which is based on the direct distribution by the government of 2745 farm holdings. A study of the two nearest Class C towns, Mussayib and Hindiya (Hilla is a Class D town), showed that Mussayib with a population of some 13,000 served a rural population of 47.000 and Hindiya with 12,000 served a rural population of 38.000. These figures and the conditions of farming were sufficiently similar to the anticipated situation in Greater Mussayib to be used as a basis for calculation. Accordingly it has been accepted as a policy that the market town, from the first, should aim at containing about a fifth of the total population of the project area, or an initial total of some 3,500. As hinted in para 20, this initial provision, within the area of Greater Mussayib, of alternative occupations and services which can result in a general raising of the standards of living and of social amenity, can be most important in checking an exodus of the young and active from the project to the new industries being set up in Hilla and Mussayib.

32. Bearing in mind the factor of walking distances, it has been calculated that only 150 farms holdings can be conveniently worked from one village. This represents a farming population of approximately 800. As 150 holdings will also be operated from the market town, the figure of 800 has to be deducted from 3,500 to give the total initial population to be housed within Greater Mussayib. This is therefore 15,400 + 2,000 - (3,500 - 800) = 20,100

33. In para 11 it was suggested that the present allocation of 50 mesharas per household would prove too large once more intensive farming methods become adopted. An analysis of well cultivated farm holdings in situations similar to those of Greater Mussayib lead to the belief that ultimately an average of

some 22.5 mesharas will be all that a single family can operate. This would result in an increase of the farming population from 15.400 to some 34.500, with consequent increases in the non-farming populations living in the villages, and in the population of the market town. The possibility, and indeed likelihood, of this eventual increase needs to be taken into consideration from the beginning in framing both the policies for the settlement and development of Greater Mussayib and the actual programs of construction.

34. Design Criteria

Three guiding factors govern the design and implementation of all rural settlement programs:

a. The limited financial income to be anticipated, to which all development must be adjusted.

b. The fact that operations must be dispersed over a wide area.

c. The need to make the fullest possible use of existing skills and traditional methods.

35. It is clear that the combination of these three factors leads to the adoption of standardization of methods and techniques in every possible field: designs, materials, construction methods, supervision, maintenance, etc. Evidently also the forms of these standards have to be worked out independently for each project area to make full use of the local potentials.

36. In every case the standards adopted (within the provision of the first three guiding factors) shall be such as will bring about improvements in living conditions, and enable a continued evolution of these to occur.

37. To this end the following criteria have been adopted as the policy framework for the design of the villages in Greater Mussayib:

a. Each village should be designed to allow for future growth.

b. While plans should allow for all anticipated needs, the building program should only meet the immediate requirements.

c. All essential utility services should be provided from the start: e.g. hard roads, water supply, drainage, primary community buildings. Construction of some of these will probably more than meet immediate needs, but this may be necessary to allow for the orderly and economic growth of the community. Construction of others (such as sanitation) may have to be delayed until a sufficient population makes them economically feasible.

d. Care should be taken in planning the normal daily routes of farmers and farm animals to and from the fields so as to avoid unnecessary distances and to limit the penetration of the animals into the village.

e. Community buildings and community services (such as the public water supply) should be located so as to promote the development of a community spirit.

A regional development program for Greater Mussayib, Iraq --8

f. In general shops and workshops should be grouped with the community buildings to promote an active social center, but activities requiring large tracts of land (such as the brick yard) should be on the fringe of the village.

g. Provision should be made both for the enjoyment of traditional sports and festivities (such as horsemanship and fencing and the celebration of marriages) and for the introduction of new ideas (such as the village radio and telephone) and new pastimes (such as creating fish ponds or swimming pools from the pits left by the construction of mud bricks).*

i. Finally, local climatic and topographical conditions should always determine the location, orientation and design of all elements of the plan.

38. Following on from the three guiding principles stated in para 34, the following criteria have been adopted as the policy framework for the design of the homes of the farming families:

a. The minimum size of the house plot should be 360 sq.m. This is sufficient to provide for a small kitchen garden as well as shelter both for the family and for their animals, storage space for food, fodder, crops and tools and space for a cart.

b. While house designs should not violate the traditional way of life of the people, allowance should be made for experimentation with new ideas which may make for pleasanter conditions of living.

c. House designs should incorporate standard fittings, should be adapted to the use of locally produced building materials and they should be designed to grow by accretions to a basic, standardised nucleus.

d. The standardized house nucleus, to be built by the Government and under the guidance of village level workers, should consist of:

- One room for the family.
- A covered space adjacent to this (verandah).
- A lavatory.

e. Completed house plans shall be prepared consisting of:

- Two main rooms with a sheltered space between them.
- One guest room with special courtyard, adjacent to entrance.
- Kitchen, store room and shower place.
- Animal shelters and space for poultry.
- Mobile earth closet.
- Courtyard with vegetable garden
- Animal's courtyard
- A projecting roof or verandah along the south elevation of all main rooms and animal sheds.

*Note: Bathing in the irrigation canals should be discouraged as this leads to infestation with bilharzia.

A regional development program fot Greater Mussayib, Iraq --9

39. An adequate supply of pure water is a primary essential for health. In consideration of the three guiding principles it is unreasonable to advocate a piped water supply to every house, but is is essential that examination be made of the possible sources of good water; if necessary for its purification and for the construction (preferably below ground) of sufficiently large storage tanks.

40. As a piped water supply will not be practicable in the villages for a considerable time, the location and design of public water fountains takes on great importance. In consideration of tradition and of the desire to promote the early development of a community spirit in the new villages, the water fountains should be so located and designed that they can become convenient and agreable meeting places for the women and girls.

41. At least the major entry road to each village and the village center should have a hard all-weather surface.

42. Primary education in Iraq is compulsory from the age of 7 to 12, but the survey of schools in Hilla liwa showed that only about half the children of school age were in regular attendance. The provision of adequate primary schools to serve all the children of school age in the Greater Mussayib project area is accepted as an over-riding policy. It is moreover suggested that the minimum school building should consist of three rooms. In many cases this building, during the first years of the project, will serve as a multi-purpose structure.

43. A health station of one or two rooms, perhaps attached to the school or perhaps to the administration building, is considered essential in every village. This minimum health station would be regularly visited by a doctor but would have no facilities for caring for sick patients. These would go to the Class B village health center which would have a resident nurse and a few beds for emergency cases. It is important for the welfare of the project that at least this equipment for meeting the needs of the population be provided from the outset. In the market town a small hospital of 40 beds or so should be built as early as possible. This should be sufficient to cover the early needs of a total population of 20,000, though almost all surgical cases etc. would have to be sent to the Class D town of Hilla.

44. The village centers of administration may, in the first instance, consist merely of a large meeting room and a small office where records can be kept safely. There might in addition be a room to be used by police patrolman, and another for postal services and a public telephone. In the early days one of these rooms might be used as the headquarters of the village level worker. In both the Class B villages and the market town this primitive equipment would be elaborated upon. Indeed in the market town two administrative buildings, each with several offices, will be needed from the start, one to accommodate all government services, and the other to house the local administration services of Greater Mussayib.

45. It is recommended that either hammams or public shower baths be erected in every village. Experience will show which proves to be the most economic in construction, acceptable by the population and easy to administer and maintain in good condition.

46. If it is not practicable to build a mosque in every village from the start, at least a walled courtyard should be provided in a suitable position, within which the mosque may later be erected.

47. While the policy of employing aided self help methods in construction should be pursued as far as possible, if is obviously impractical to take a skilled man away from urgent work on his farm to undertake construction work at which he is less skilled. Consequently it is probably better policy to employ contract labor to install all the public utility services which need skilled labor (such as the water supply system, major roadworks, etc.) as well as the more complex public buildings and the nuclei of the farm houses. The completion of the farm houses, the less complicated public buildings and much of the public utility work can then be handled by the local populations in their own time, under the guidance of village level workers.

48. Administrative and Financial Policies

Local administration of the villages should, as soon as possible, be placed in the hands of the village people. This policy may not be very easy to implement as the practice of local self government will be strange to most of the settlers, and the tendency may well be to leave all administrative decisions to some government official, reserving to themselves only the right to criticise and to grumble when things go wrong!

49. In this connection, the tactful and patient assistance of village level workers, trained to assist community development, can be most valuable. The aim should be the establishment, within each village, of a village council able to take decisions on all matters concerning the local life and well-being of the village community, and to represent its needs to the appropriate central authority in the market town.

50. It is general government policy that all beneficiaries from its housing programs should eventually repay the government, usually by instalments, for the cost of their houses. As rural cash incomes are low this policy can result in a heavy burden being placed on the shoulders of the settlers. On the other hand, rural houses can often be constructed of locally produced materials; and the natural manual skill of a farming population can be employed, under guidance, to construct, or at least to assist in the construction of their own homes, thus greatly reducing their cost to the government. It is therefore proposed that in the development of the housing program for Greater Mussayib the greatest possible use be made of the principles of aided self help.

51. The financing authority for the development of Greater Mussayib will be the government, whose project office will be in the market town. It is proposed that this office should undertake all the necessary public works for the benefit of the project in its early stages, and that it should later charge the costs of these to the appropriate government ministries or to the Greater Mussayib local authorities; once these have been set up and able to take in revenues. These public undertakings would include the construction of schools and other community buildings as well as houses for civil servants (which would be rented).

52. It is further proposed that this office should undertake the initial construction of industrial workshops, commercial shops and coffee houses, which would then be sold outright to their occupiers on such terms as will encourage the early establishment of these highly important non-farming settlers throughout the project area.

53. Policies for the initial provision of adequate training and education for the early settlers and their families also fall under the heading of Administration and Finance. The importance of establishing a corps of village level workers, well trained in the different aspects of community development, has already been mentioned. It is impossible to overstress this point.

54. When trained, the village level workers should be sent out to the villages, but remain under the central control of the training center, which would be responsible to the president of the development committee for Greater Mussayib.

C. PROGRAMS

55. Physical Planning Programs

Plans for two of the village sites which were studies in detail are described here as they present examples of two different approaches: a division of the area into single-access house plots, and into double-access plots. In the first plan both men and animals use the same entry, in the second the animals enter along a back lane.

56. The first plan is for village V15, which lies within the orbit of the market town, South-East of the center of the project area. The plan, as shown on fig. 14, is for 353 farm houses and 28 non-farming households. This is considered to be the maximum size to which this village can grow, when more intensive farming has been introduced, and the land is able to support one family for approximately every 22 mesharas instead of 50 as at the start. In the first phase this village will contain 154 farm houses and 14 dwellings for non-farming families

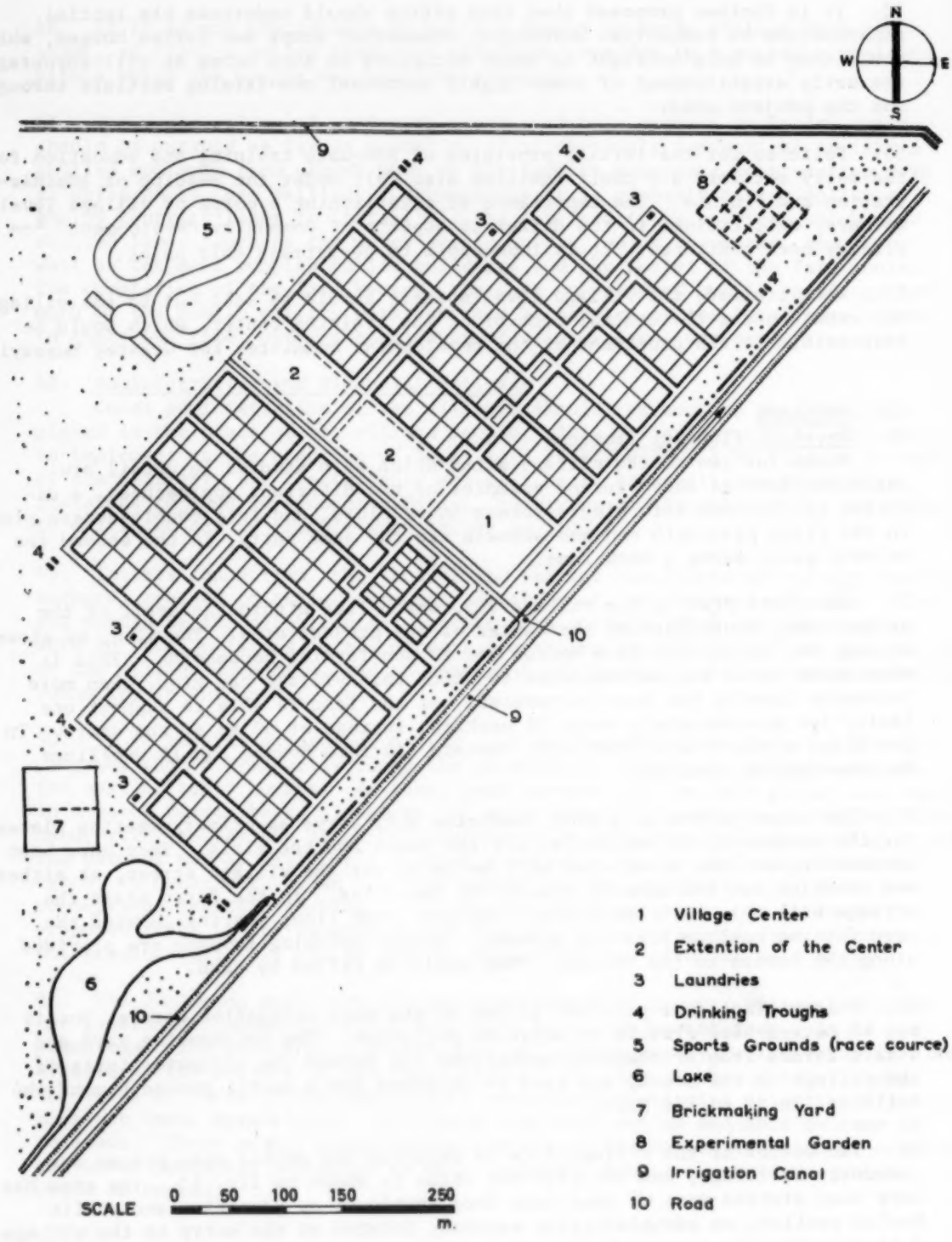
57. The water points or public fountains will serve as primary meeting places for the community, in particular for the women and the girls. They have been located in one line along what will be in effect the village street, at either end of which are the washing places, or laundries. In the first stage the village will only have one street, and one water line, bearing in mind the need for the maximum possible economy. Animal drinking troughs are provided along the routes to the fields. They would be filled by hand.

58. This village runs parallel to one of the main irrigation canals, but is set 40 meters back from it to minimize pollution. The brickmaking yard and a lake formed from brickmaking operations lie beyond the ultimate limits of the village to the south, and land is reserved for a sports ground beyond the building limits to the West.

59. The center of the village site is reserved for public open places and community buildings, and the plan for these is shown on fig. 15 The area has here been divided more or less into four sections: an education and public health section; an administrative section, located at the entry to the village; a section for the mosque which includes a large walled garden and contains an

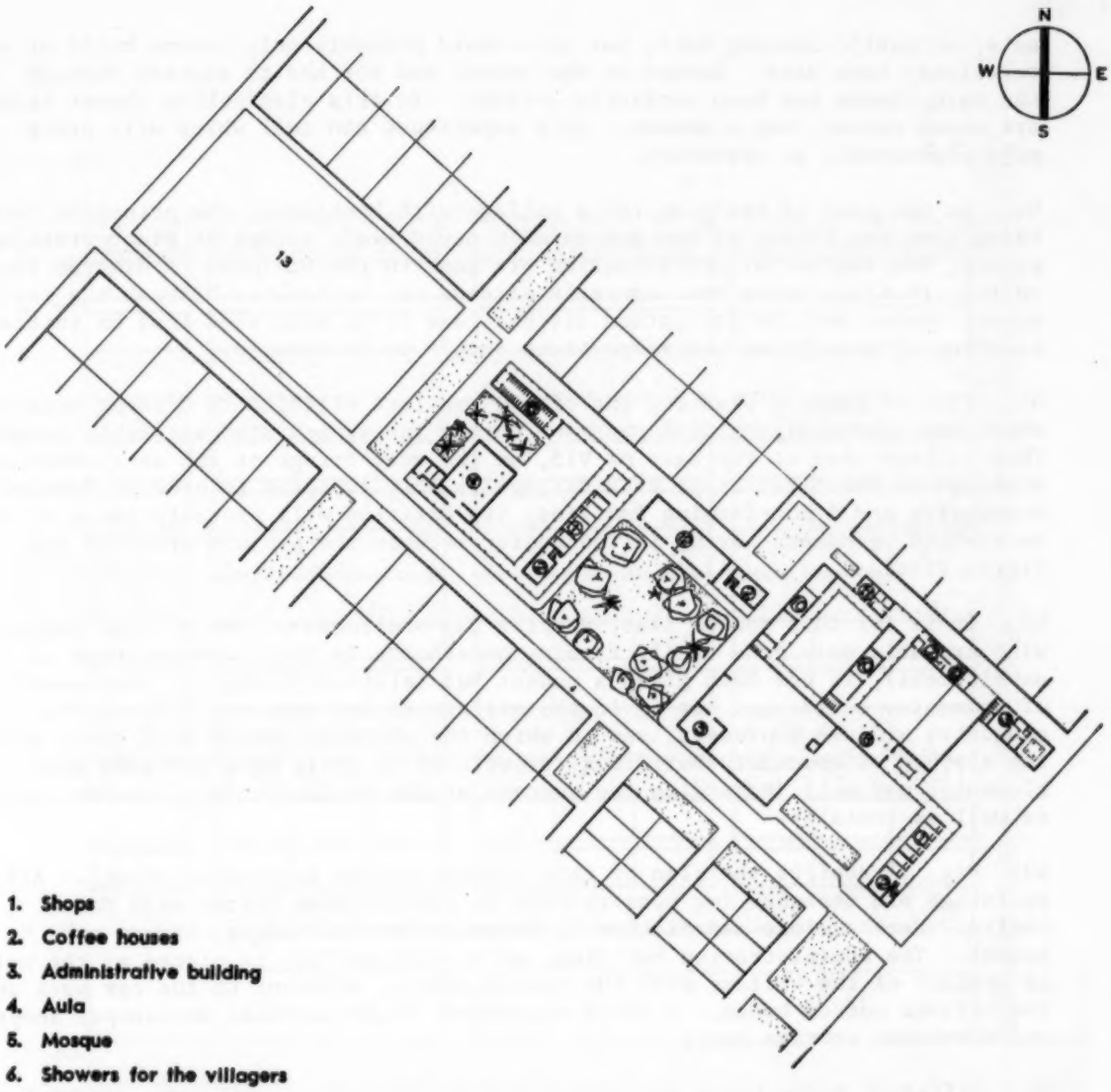
GREATER MUSSAYIB - VILLAGE V15, LAY-OUT

Fig. 14



GREATER MUSSAYIB - VILLAGE V15, COMMUNITY CENTRE

Fig. 15



1. Shops
2. Coffee houses
3. Administrative building
4. Aula
5. Mosque
6. Showers for the villagers
7. Showers for the pupils
8. Shelter
9. Health Station
10. School classrooms
11. Caretaker's house
12. Warehouses
13. Extension of the village centre

aula, or public meeting hall, but this would probably only become built at a relatively late date. Access to the school and the health station through the main square has been carefully avoided. In this plan public shower baths are shown rather than a hamman. Only experience can tell which will prove more practicable in operation.

60. We now pass to the plan for a village with backlanes, the principle here being that the routes of men and animals never meet, except at minor crossing points, and sources of contamination are kept to the minimum. A diagram layout on fig. 16 illustrates how vegetable gardens can be located between the cattle access routes and the irrigation ditches, and it is suggested that an initial planting of date palms and mango trees should be encouraged.

61. Fig. 17 shows a plan for one of the smallest villages in Greater Mussayib, which has been designed with separate cattle lanes, and also vegetable gardens. This village lies to the East of V15, on the very fringe of the settlement area. Although at the first stage this village is only expected to have 66 farming households and 8 non-farming families, its position will probably cause it to be visited by nomads living in the region between the project area and the Tigris river.

62. It is for this reason that, despite the smallness of the village (which will probably only grow to 150 farming households in its ultimate stage of development), it has been given a modest but relatively complete complement of community buildings. It is in the village center that the life of the community will be expressed, and to which the visiting nomads will come, and the absence of community buildings, especially in these more isolated settlements, may well jeopardize the success of the entire project, economically as well as socially.

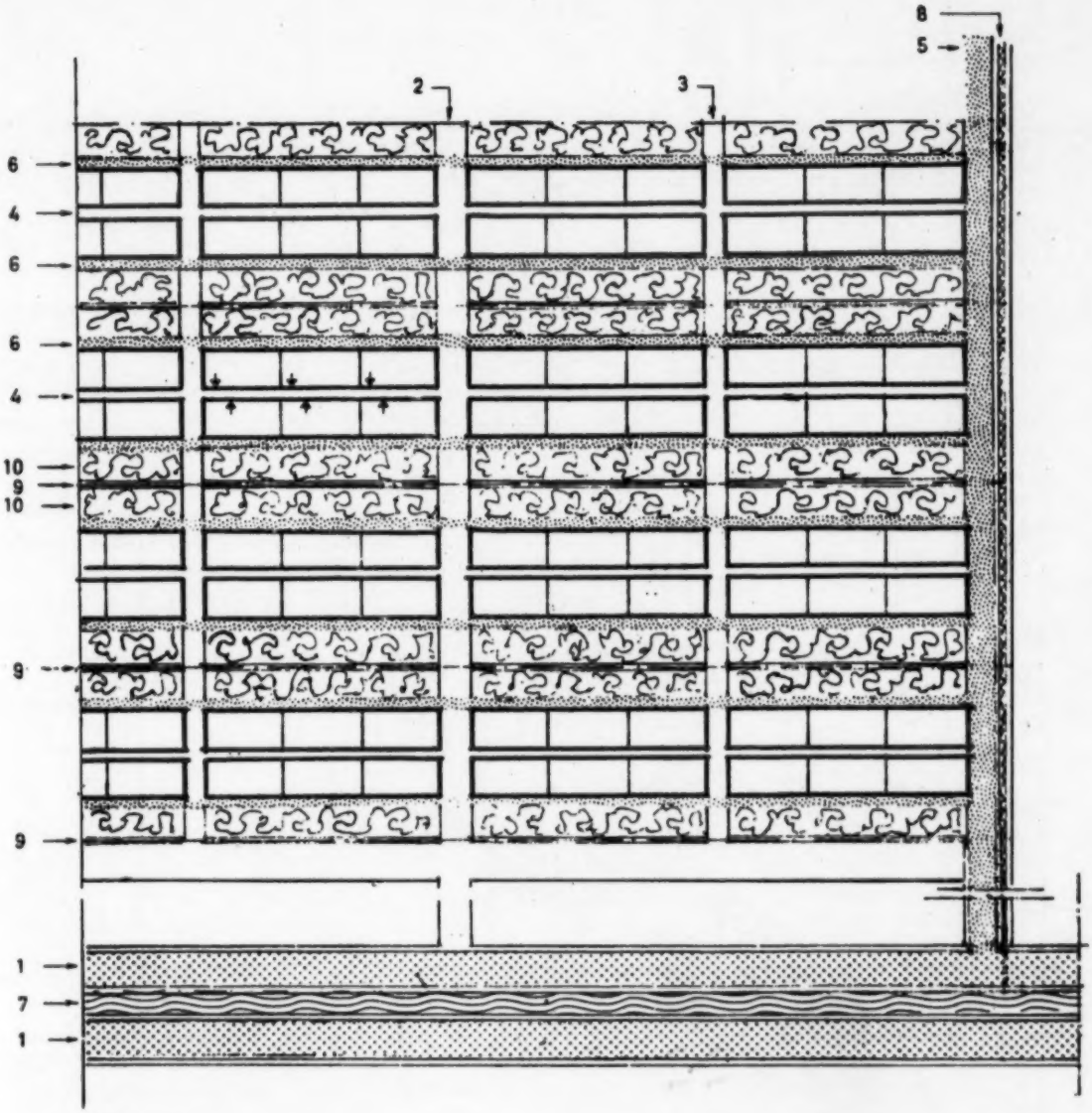
63. Fig. 18 depicts the plan of this village center in greater detail. All buildings are designed for construction in locally made bricks with domed vaults. Here a close association is foreseen between mosque, hammam and school. The administration building, as in village V15, is placed at the point of contact of the village with the outside world, adjacent to the car park and the village coffee house. A third structural block contains workshops, shops and warehouse storage space.

64. Different house types are called for for the village plans based on single or double access points for men and animals. Two standard types are shown in figs 19 and 20. Both conform with the list of requirements laid down in para. 38, and the initial 'farmhouse nucleus' is only slightly varied following the demand for the utmost standardization possible, so as to keep costs to a minimum.

65. Fig. 19 gives a plan, section and perspective sketch of a house suitable for village V15, with both people and animals entering from the same side. These house plots can be placed back to back so that an eventual sanitation line may be run between them, linking up all the toilets, which lie along this boundary.

GREATER MUSSAYIB - VILLAGE LAY-OUT PRINCIPLES
VARIATION WITH INDIVIDUAL VEGETABLE GARDENS

Fig. 16

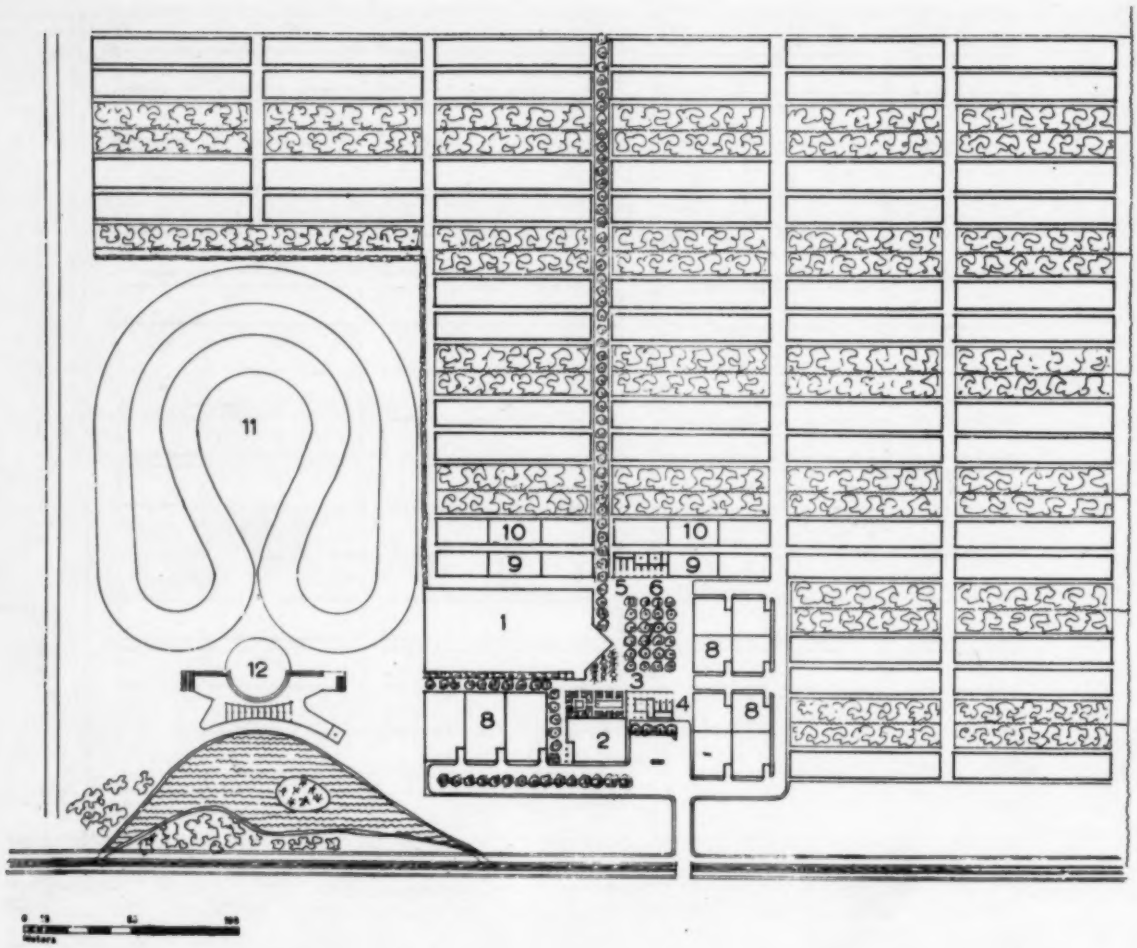


KEY

1	Main Road	6	Cattle Access Roads
2	Main Internal Road	7	Main Canal
3	Pedestrian Road	8	Branch Canal
4	Pedestrian Access Road	9	Irrigation Ditches
5	Main Cattle Road From Fields	10	Vegetable Gardens

GREATER MUSSAYIB - VILLAGE V14, LAY-OUT

Fig. 17



1. Mosque, school & hamman block
2. Administration building
3. Coffee house
4. Commercial shops
5. Industrial shops
6. Weekly market, good's booths
7. Park
8. Houses for non-farming families (officials etc)
9. Houses for non-farming families (tradesmen)
10. Houses for farming families
11. Horse racing grounds
12. Wrestling and dancing ring

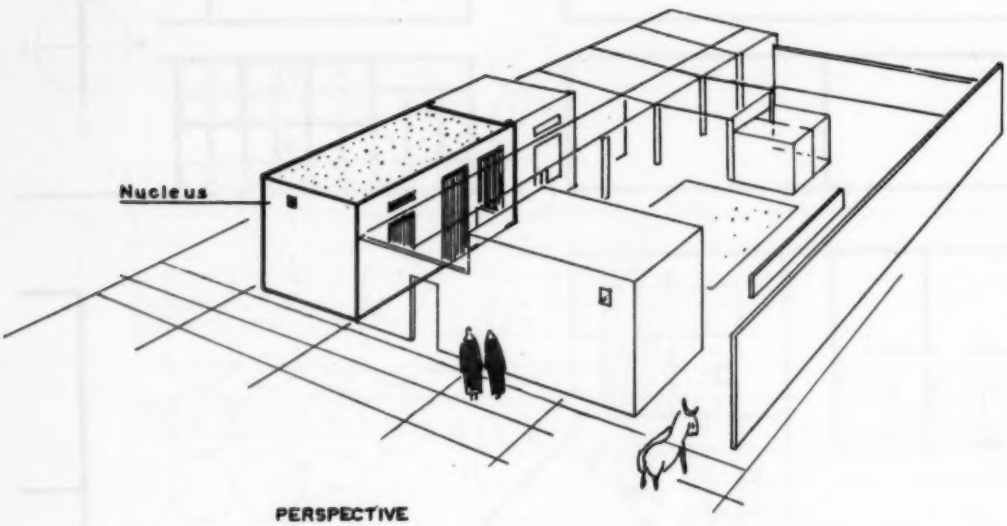
GREATER MUSSAYIB - VILLAGE V14, COMMUNITY CENTRE

Fig. 18

1. Mosque
2. Hammam
3. School
4. Administration building
5. Coffee house
6. Shops
7. Stores
8. Good's booths
9. Stores and workshops
10. Park
11, 12, 13. Houses for non farming families

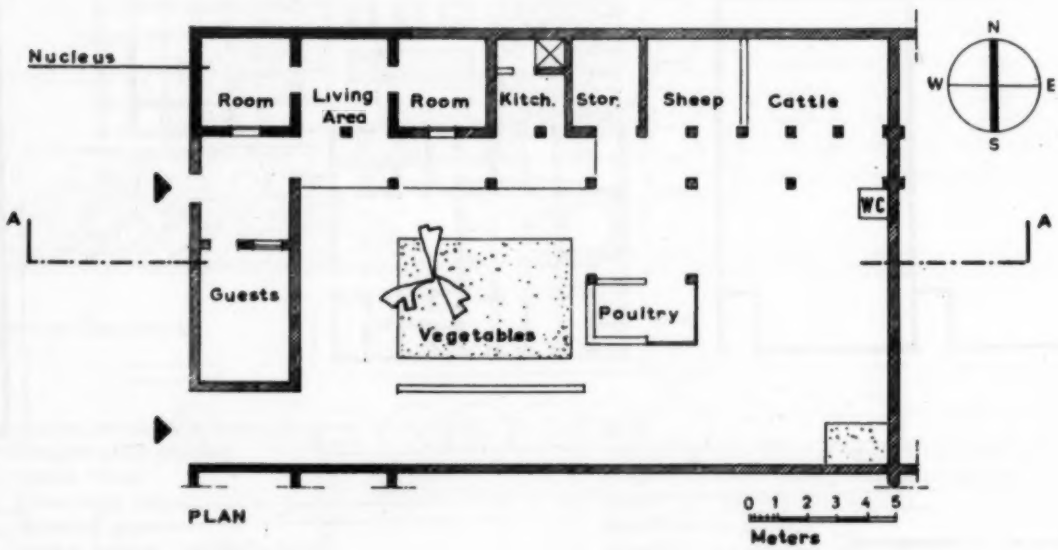
GREATER MUSSAYIB - HOUSE TYPE QR1

Fig. 19



PERSPECTIVE

SECTION A-A

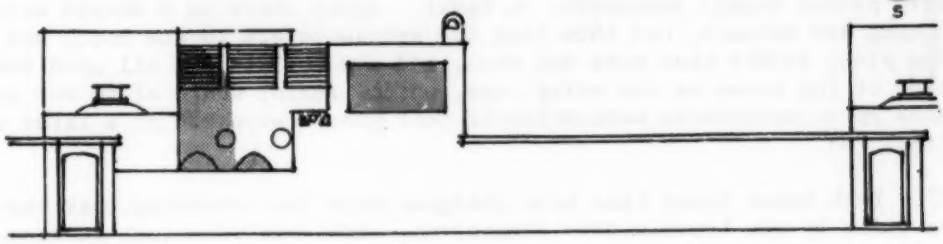


PLAN

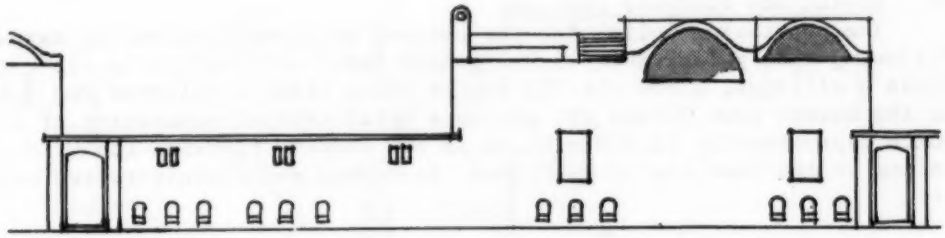
GREATER MUSSAYIB - HOUSE TYPE QR9

Fig. 20

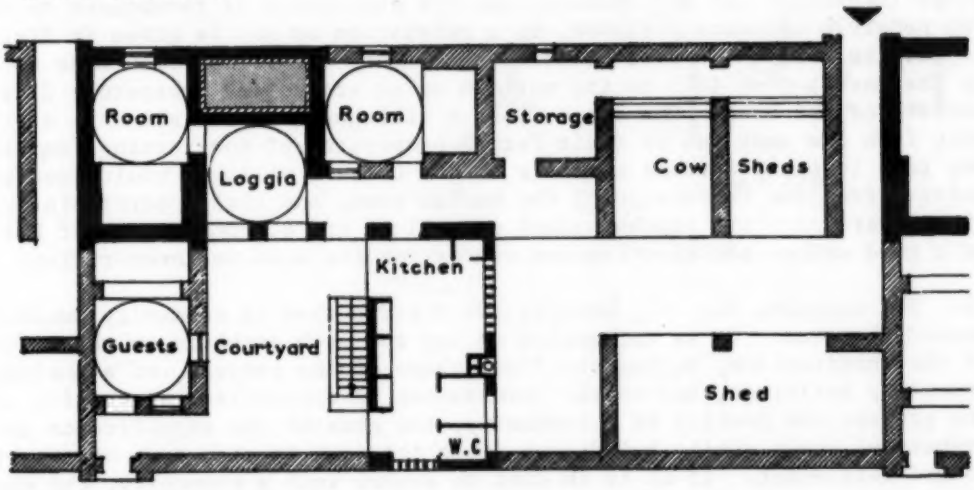
SOUTH ACCESS



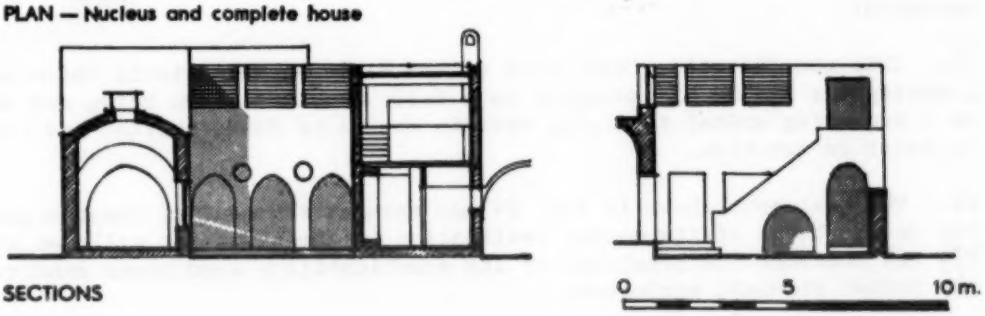
SOUTH ELEVATION



NORTH ELEVATION



PLAN — Nucleus and complete house



SECTIONS

66. The second house type is based on the use of simple brick vaults such as have proved highly successful in Egypt. Again there is a double entrance for humans and animals, but this time the entrances are to the north and south of the plot, rather than east and west, and the toilets are all upon the same side of the house as the water line, which, again, would allow for an easy hook up to waterborne sanitation if this proved economic at a later stage. (fig. 20).

67. Both house types have been designed with the intention that they could be built by the householders themselves, with some technical guidance from village level workers.

68. Social and Economic Programs

The population policy for the project area was outlined in paras 32. Following this policy some 13,700 people (68%) will settle in the eighteen Class A villages, 2,900 (14.7%) in the three Class B villages and 3,500 (17.3%) in the market town (Class C), giving a total initial population of 20,100, of which approximately 15,400 will be in the farming families and 4,700 will belong to the families of craftsmen, tradesmen and administrative officials, etc.

69. Fig. 21 shows the number of houses which will be required in the first stage in each of the settlements, and the proportion of farmhouses to the rest. The possible ultimate position, in a generation or so, is given in fig. 22. It will be noticed in both diagrams that every effort has been made to build up the market town (VI) to its maximum as an active and prosperous Class C center for the area. The three Class B villages are only slightly distinguishable from the rest due to their larger proportion of non-farming families. It was felt that any further emphasis on the Class B villages would inevitably detract from the importance of the market town, and that - particularly in the first instance - the psychological as well as the economic value of building up a good market and distribution center for the area was over-riding.

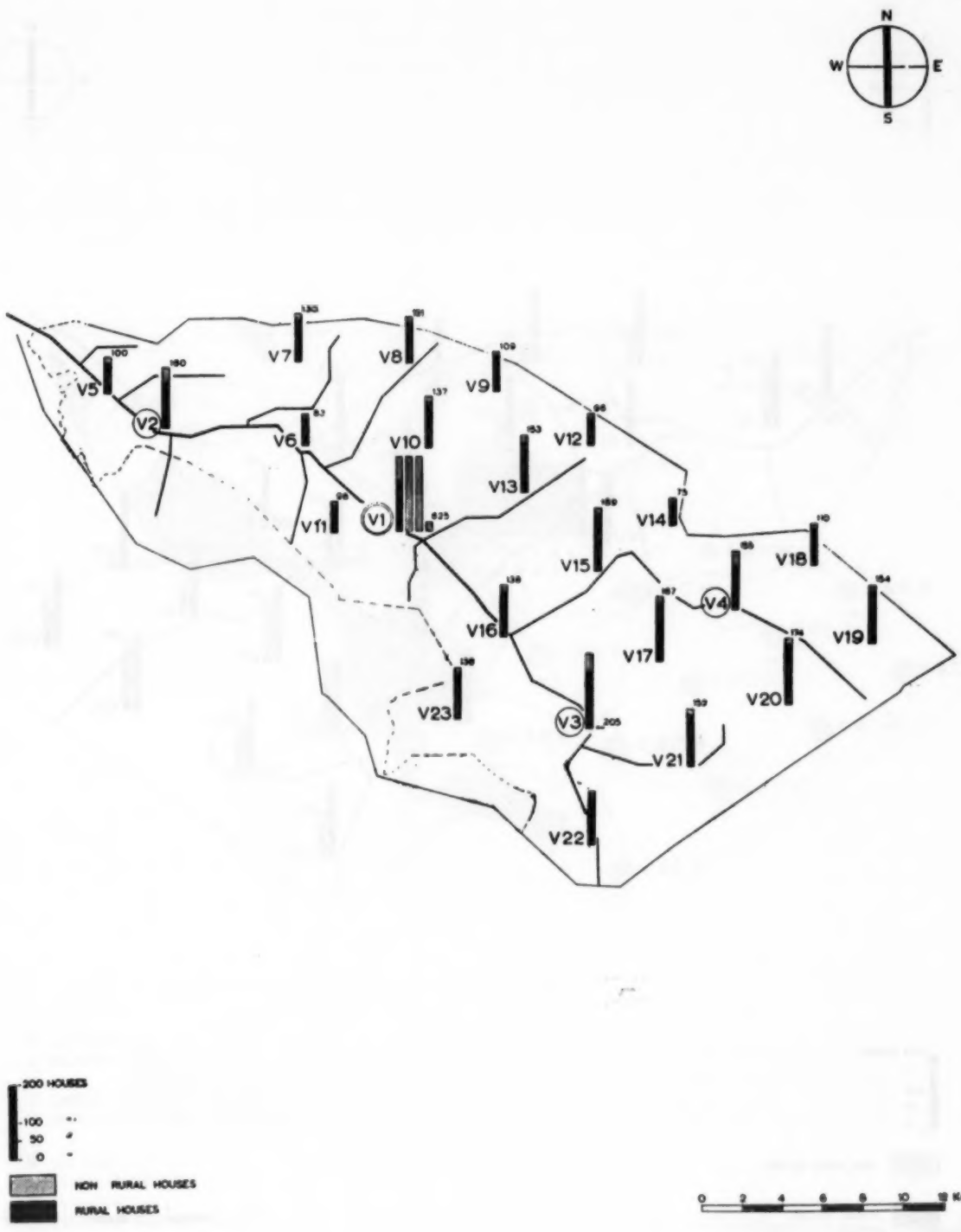
70. The diagram, fig. 23, depicts the distribution of community buildings around the area. It is impossible to lay too much emphasis on the importance of the construction, during the first phase of the project, of a nucleus of community buildings, and on the reservation of appropriate spaces for others. The greater the poverty of a community, the greater the significance to its members of their public buildings: much the same is also true of a newly formed settlement. If it is in fact to evolve into a community, the expressions of community spirit - e.g. public buildings and public open spaces - are essential.

71. This consideration forms much of the basis of our ekistic thinking: the planning for man in his totality as a fully sentient human being, and not simply as a producing animal requiring certain minima of food, shelter and clothing in order to function.

72. The equipment shown in fig. 24 may seem extravagant at first sight, but the descriptions of its modest realization in the plans for villages V15 and V14 may convince the sceptical of its practicability even under conditions of the utmost economic stringency.

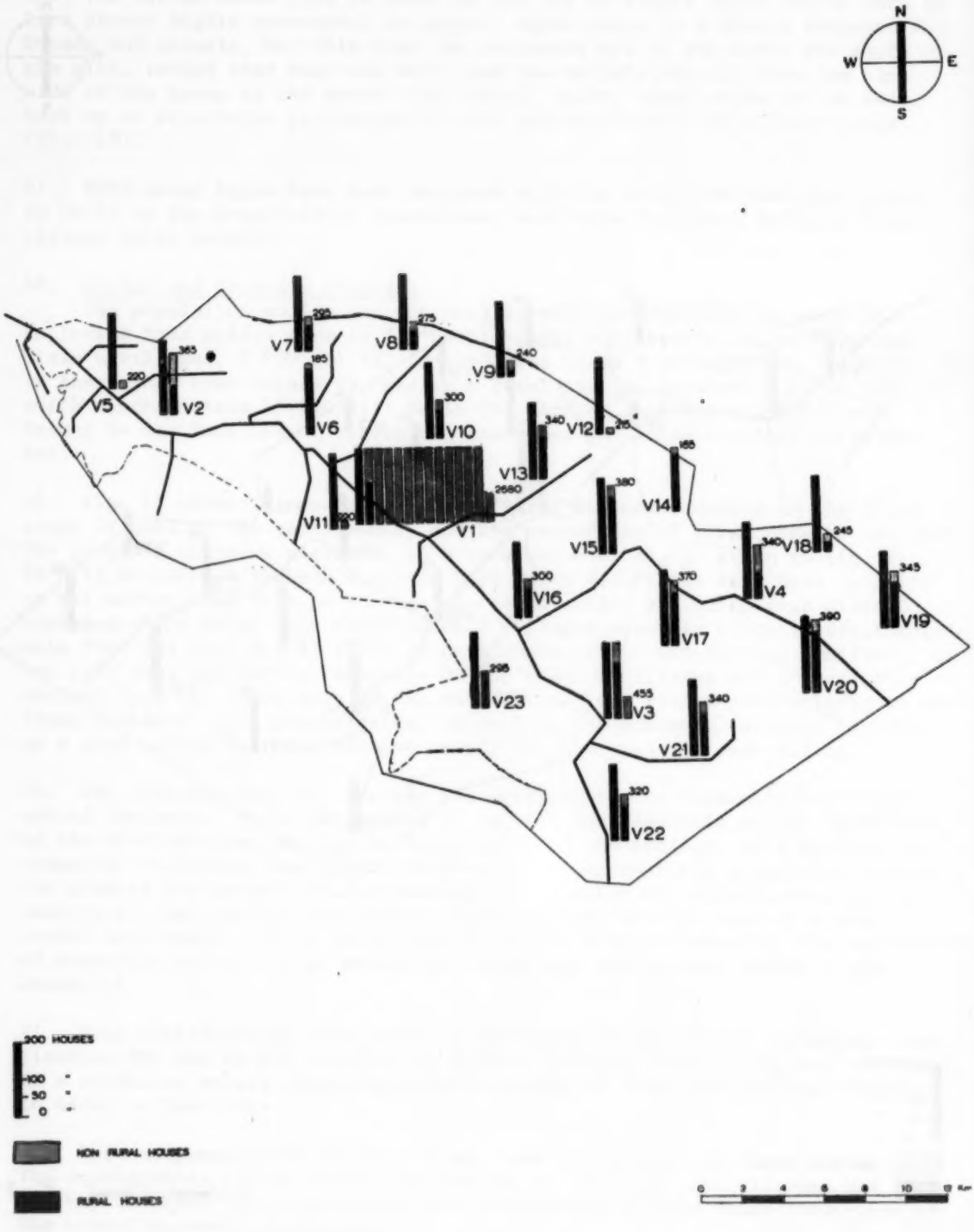
GREATER MUSSAYIB - NUMBER OF HOUSES - 1st PHASE

Fig. 21



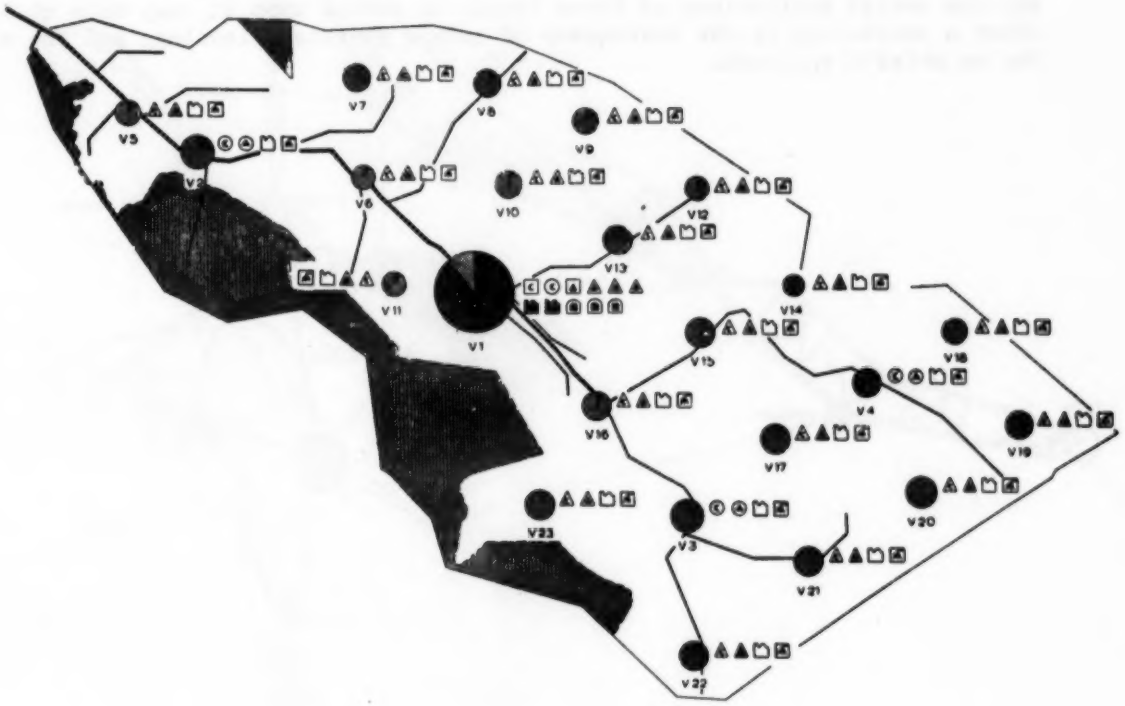
GREATER MUSSAYIB - NUMBER OF HOUSES - 2nd PHASE

Fig. 22



GREATER MUSSAYIB - DISTRIBUTION OF COMMUNITY BUILDINGS CULTURAL, HEALTH AND SOCIAL WELFARE BUILDINGS

Fig. 23



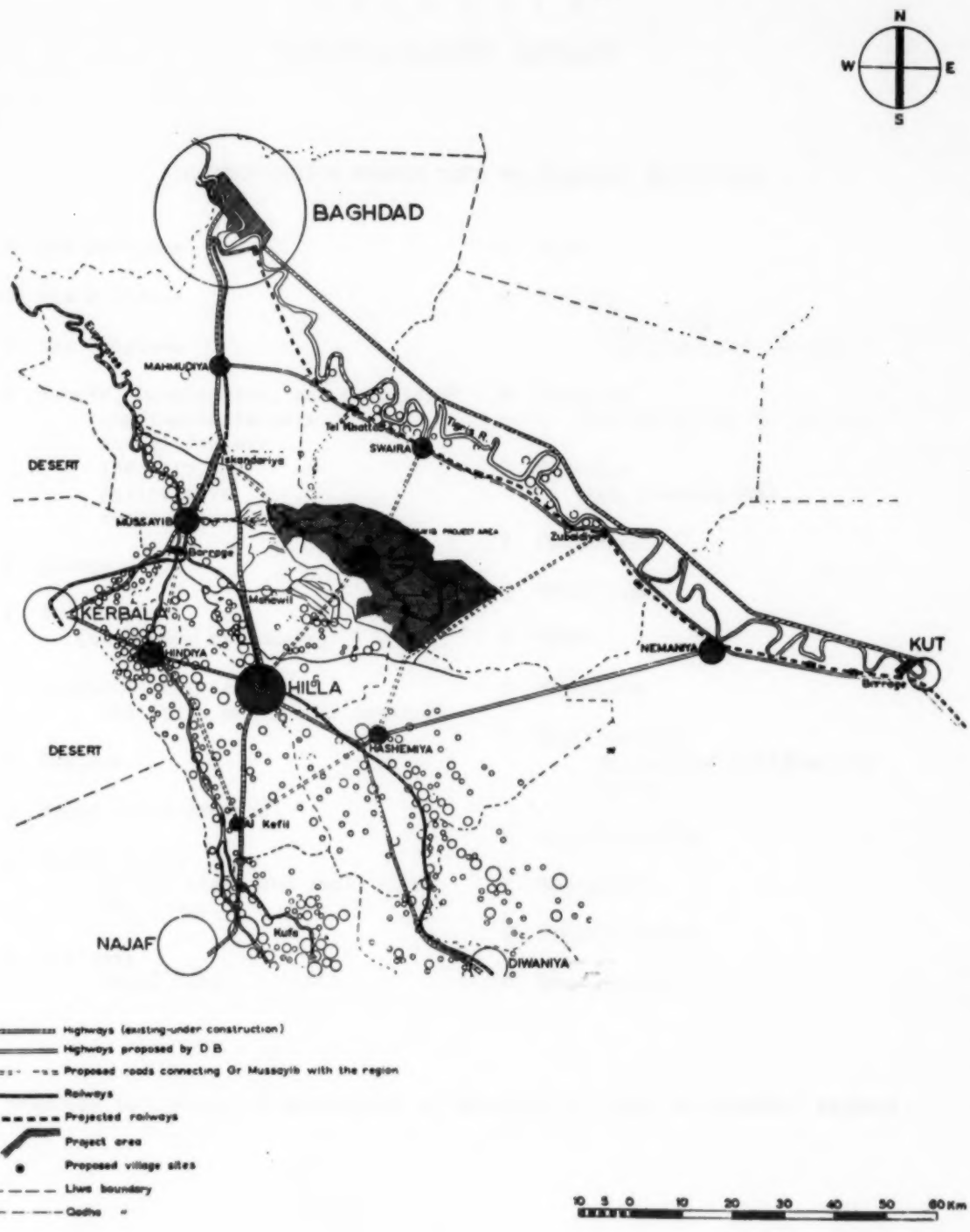
- HOSPITAL
- HEALTH CENTER
- " STATION
- LARGE COMMUNITY CENTER
- SMALL COMMUNITY CENTER A
- " " " B
- MOSQUE
- SMALL MOSQUE
- HAMMAM
- SHOWER BATHS

73. Certain minor features of nomenclature in fig. 23 have since undergone modification. It is believed that hammams, though almost certainly more expensive in first costs, are likely to prove more popular than community shower baths, and experiments will be made with both. In fig. 23 hammans are only shown in the market town. The term "community center" is also used here. This will, in most cases, be interpreted simply as a multi-purpose assembly hall, or aula.

74. In conclusion, it is hoped that this description of part of the work which went into the preparation of the development program for the transformation of Greater Mussayib from a tract of irrigated saline land into a fully integrated environment for human development, (fig. 24) within the economic limitations and the social aspirations of those likely to settle upon it, may help to bring about a conviction of the inadequacy of simple physical planning, and the need for an ekistic approach.

GREATER MUSSAYIB - THE PROPOSED PLAN AND THE REGION

Fig. 24



E K I S T I C S

HOUSING & PLANNING ABSTRACTS

CLASSIFICATION SYSTEM USED BY DOXIADIS ASSOCIATES

A The Problems

B The Policies

C The Programs

D People, Development, and Ekistics**
- Geographic factors
- Social factors
- Industry
- Agriculture
- Transportation

E Houses

F Structures (exclusive of Houses)

G Community services
- Utilities and Social Services

H Regions

I Major urban centers

J Market towns
- Medium-sized and small towns
- New towns

K Villages
- Rural land

L Farms

M Surveys
- Census data
- Topographical surveys

N Research (and Technical Education)

O Planning (and Landscaping)

P Financing

Q Urban land

R Labor

S Materials

T Construction
- Systems of Building and Costs

U Implementation

V Management

W Administration

X Legislation

**Refers to centers of activities in relation to their surrounding regions.